The Builder.

VOL. LXXIX., No. 3918. SEPTEMBER 25, 1900.

ILLUSTRATIONS.

Premises on the site of Christ Church, Birmingham.—Messrs. Essex, Nicol, & Goodman, Architects ..... *Double-Page Ink Photo.*
Design for a House in New York.—Mr. Reginald Blomfield, Architect ..... *Double-Page Ink Photo.*
Decoration of an Overmantel in Carved Oak. By Mr. Joseph Ogden ..... *Double-Page Ink Photo.*
Sketches in Clare Market. By Mr. Geo. W. Collins ..... *Double-Page Ink Photo.*

Blocks in Text.

Detail of Door, Clonfert Cathedral ..... Page 266
Door, Clonfert Cathedral ..... „ 267
New Premises, Birmingham, Block Plan ..... „ 272
From a Painting of a Vase and Stand at Beni-Hasan ..... Page 273
Tomb of King Qa ..... „ 273
Diagrams Illustrating Student's Column ..... Pages 275-6

CONTENTS.

Some Cities of Modern Italy—Venice 263
Notes 265
The Statistics of Saxon Churches.—I. 266
Stained Glass at the Paris Exhibition 269
Archæological Societies 270
Competitions 271
Building Trades' Gift to the Nation 271
Trade Catalogues 271
Illustrations:—
New Premises on the Site of Christ Church, Birmingham 272
House in New York 272
Illustrations:—
Design for Decoration of an Overmantel 270
Sketches in Clare Market 270
Books:—
W. M. Flinders Petrie's "Royal Tombs of the First Dynasty"; W. Ll. Griffith's "Archæological Survey of Egypt"; Arthur Stapylton Barnes's "St. Peter in Rome and his Tomb on the Vatican Hill"; Godfrey Blount's "Arbor Vitæ"; George V. C. Holmes's "Ancient and Modern Ships" 272-274
Books Received 274
The Student's Column.—Lessons in Electrical Engineering.—12. 274
General Building News 276
Sanitary and Engineering News 277
Stained Glass and Decoration 277
Foreign 277
Miscellaneous 278
Recent Patents 278
Meetings 279
Some Recent Sales of Property 279
Prices Current of Materials 279
Tenders 281

Some Cities of Modern Italy.—Venice.

FOR half a century past the Ducal Palace has been the object of a continual interest in the world of art, and quite recently the public has been gravely informed in the newspapers that this celebrated building is in a most precarious condition, and will have to be rebuilt within the near future. Suggestions have even been volunteered as to its being "restored" in accordance with what is considered the original design—that is to say, with the portion next the Canal "della Canonica." Such statements have, of course, been received at their proper value by those who are acquainted with the palace and know something about the ordinary conditions of such buildings, but to the public such news was at least startling.

It seems true that a slight failure in the foundations on the side of the palace towards the Riva della Canonica (the canal spanned by the Bridge of Sighs) has more especially manifested itself of late years. This slight settlement has probably been in progress ever since the building of this flank in Renaissance times. The rest of the buildings are in the same state as they have been in for centuries, and therefore the nonsense published of late in the newspapers may have originated, as suggested in the report of the Ufficio Regionale, in the malicious insinuations of a discharged employee of that office, who also charges the Ufficio Regionale with want of care of the building. At the same time, to secure as much as possible the Riva della Canonica flank from farther deterioration, it is proposed to remove the heavy statues and marbles of the museum, and the books of the great library, from that portion of the palace where they are at present located. This, it is hoped, may have the desired effect and obviate more important measures.

The Ducal Palace of Venice was assigned as the home and headquarters of all the literary, artistic, and scientific societies of the city so long ago as the year 1823. Even in those days it was looked upon as a national artistic monument to be religiously preserved. Since then the greater part of it seems to have been abandoned to the emptiness and uselessness which has been the fate of so many old palaces during the nineteenth century. But although the original purpose of its erection has completely disappeared, and its huge rooms are seldom occupied by the learned societies, in a way it may perhaps be considered to be more largely made use of at the present day than at any previous period of its history. The enormous crowds of tourists who are marshalled through its otherwise empty rooms between the hours of 9 a.m. and 4 p.m. are quite astonishing, and especially on Sundays, when there is often difficulty in moving through them. Fortunately the floors appear to be in good condition; the weight of several hundred persons moving about in some of the great chambers is certainly quite equal to anything they were ever intended to bear. The income of the palace derived from entrance fees now amounts annually to about 70,000 fr. This sum is chiefly consumed in payment of officials, but a sufficiency remains for the maintenance of the building.

Many of the private palaces on the Grand Canal have been restored and subjected to necessary alterations and repairs for the purpose of letting out as residences for the foreigners who are the chief inhabitants of the city nowadays. These restorations have taken place chiefly during the past ten or twenty years, and in most cases they have been carried out with some regard for the conservative principles of modern times. A few of the more important examples are occupied by public offices and houses of business. The old patrician families whose names are still associated with them have long since faded into oblivion. It is even supposed that if the famous Republic were to be reinstated at the present day, not ten representatives of the ancient families could be found to carry on its traditions. In this respect Venice is unlike almost any other Italian city. In Florence, Rome, or Naples, for instance, the ancient families seem still to occupy the palaces of their ancestors, but in Venice one of the largest and most important of the old Italian aristocracies disappeared very soon after the fall of the Republic, just a century ago.

As a general rule, the ancient buildings of Venice are well cared for, and under the auspices of the newly-instituted "Ufficio Regionale per i Monumenti" much more may be expected to be done in that way in the future. An exception must, however, be made in the case of what appears to have been an old palace which has been recently restored and enlarged by a glass manufacturer named Baron Franchetti. This unfortunate building has been completely "restored" in the most unsympathetic, crudely modern style imaginable. Its reconstructed marble windows have a cast-iron rigidity of appearance by the side of neighbouring old buildings, and they are fitted with enormous sheets of plate glass with invisible iron frames. In fact, no better example of how *not* to restore an old building could be instanced than this; even the most ignorant tourist passes it by with a shudder. Unfortunately it stands in a conspicuous position on the Grand Canal, close to the iron girder bridge (the only thing with which it is in harmony), and produces a most unpleasing effect in that part of the city. The celebrated Ca d'Oro, a singularly rich example of the Venetian style, is said to be also in the hands of Baron Franchetti, and at present it is in process of "restoration," but it is to be hoped the "Ufficio Regionale" will exercise a sufficient control over the Baron's proceedings to prevent another disastrous disfigurement of the Grand Canal.

Not far from Palladio's wonderful church of the Salute, a simple unpretentious building in yellow brick, with the characteristic ogee-headed windows, is at present being erected. This is one of the largest,

and, on the whole, most satisfactory modern buildings in Venice. At the end of the Guidecca Canal, farthest from S. Mark's, a district of the city unknown to the ordinary tourist, a huge flour mill with grain elevators, &c., has been erected during the last few years, but it is merely an enormous utilitarian building with vulgar "Gothic" details, and of no architectural interest. Some attempts are at present being made to provide new model dwellings for the poor, to replace the miserable and dilapidated hovels in which they have been condemned to exist for centuries past. There are several blocks of these near the Public Gardens, but the buildings are of a poor common place description, and the planning is not up to the mark of northern standards. However, with some attention to order and cleanliness they are an improvement on the old slums, and they have air space around them and proper drainage.

Amongst the modern buildings of the city should be noted the two enormous lunatic asylums, built on two islets in the great lagune towards Chioggia. However, they are not buildings of any architectural character; their outsides are of the plainest description.

No architectural or artistic monuments of any importance have been erected in Venice since the fall of the Serene Republic, about one hundred years ago, but during the last few years many more or less partial restorations of old works of art have taken place. The mosaics of S. Mark's Church have been restored over and over again. Artists of all ages seem to have had a special pleasure in replacing or adding to these works of their forefathers, and many of the latter productions are certainly very atrocious attempts. In the middle of the past century regular "restorations" were attempted, by Salviati, and afterwards by the Venice-Murano Company (an English syndicate), whose productions, having since fallen into decay, are again being restored. Very little of the outside of S. Mark's can really be considered old in any sense, except the monolithic columns with most of their capitals. The north and south sides of the church were completely rebuilt about twenty-five years ago, at the time the late G. E. Street and others made useless protests against this vandalism. The west front still retains a great deal of mediæval carving, and the columns already referred to are a curious study; where did they come from? They seem too small to have been stolen from Levantine classic buildings, in the way in which the later Venetians used to enrich their *patria*, and yet they are so evidently the spoils of other monuments.* Some of them have been the shafts of small Greek temples, perhaps; a whole series of the same section and the same variety of marble have the singular characteristic of a polygonal plan, without being fluted.

Internally S. Mark's retains a very venerable appearance, in spite of many restored mosaics, &c. The flooring, which was being subjected to all the destructive influences of "restoration" at the time of the celebrated protest twenty years ago, seems to have been afterwards abandoned in its original state in consequence of the protest. The portions which were then made new, show up in curious contrast with the old unrestored parts. In some places, where the tesseræ have really given way and the structure is in a ruinous condition, a mere filling-in of hard cement has been adopted, and the result, from an archæological standpoint, is satisfactory.

One of the most beautiful Renaissance buildings in the world, the little chapel of S. Maria degli Angioli, built in the fifteenth century, was restored about fifteen years ago, unfortunately before the introduction of the Government supervision in such matters. The restoration was not of so bad a character as might have been expected under the circumstances. The building is probably much in the condition in which it was left by its original builders. As an example of *cinque cento* construction it seems very defective; pieces of its marble incrustation are frequently giving way and falling down. In fact, it must be considered more as a huge shrine built in the open air, covered with a marble veneer, than a building in the strict sense; it seems almost to need protection from the weather.

To visit one of the thirteenth or fourteenth century churches of Venice restored in the sixties or the seventies, such as S. Maria del Orto or the Cathedral of Murano, carries one's fancy back to England and the more or less successful attempts of Sir G. G. Scott and G. E. Street to reproduce Italian Gothic churches on English soil. The type of Italian work which English architects of those days tried to assimilate is, perhaps, more especially Venetian than that of either Lombardy or Tuscany. The somewhat economical-looking, thin-walled brick and marble work of Venice was evidently found to lend itself to the exigencies of modern church committees and the benevolent church societies, better than the ponderous masses of the central Italian style. The huge brick façade, with wheel window and square pilasters, instead of buttresses, of Milan and Florence, has probably never been imitated in England; but the influence of the comparatively cheap Venetian church with a wooden roof is too well known to need a reference. In the case of S. Maria del Orto one feels as if one might be in an English church built in the sixties, because this particular church was so very completely "restored" about that same time, and in a way which has eliminated, as far as possible, every trace of the original building.

The "Ufficio Regionale per la Provincia Veneta" has recently published its "Relazione" for the years 1896-98; and this perhaps gives the very best résumé of the present state of the city of Venice in its artistic aspect. This Report, which is addressed to the Minister of Public Instruction, begins with an account of the repairs necessary to the Ducal Palace, and mentions various matters connected therewith which we have already embodied in the above remarks on that building. It then proceeds to treat of other public and private monuments which are more or less directly under its care, or subject to its influence. The campanile of S. Mark is in a perfectly sound condition, in spite of the false rumours as to its stability which obtain circulation from time to time. A German manufacturer of Milan has recently offered to place a lift inside it, but the proposal has been rejected as unsuitable for a monument of such historical associations.

The less important churches of Venice which have been repaired, or are in need of attention, are mentioned in detail. Amongst them may be mentioned the Church of S. Moise, the *barocco* front of which is in constant need of care. In the Church of S. Salvatore a proposal to insert one of those deplorable attempts at stained-glass windows which are still perpetrated in Italy has been put a stop to, and this action of the Ufficio Regionale is particularly laudable, as the chapel in which the window is situated contains an altar-piece by G. Bellini. In the same church the Ufficio Regionale has insisted upon the removal of certain curtains before pictures; such things are injurious to the works of art they are supposed to protect, rubbing and scratching the surface of the painting, and their chief use is merely to act as a means of extracting fees from tourists by the custodian. In several cases the Ufficio Regionale has exerted its authority to prevent the constant injury to paintings in churches by the dropping of candle-grease, and the harmful practice of swathing the monuments of the Doges and other architectural features of churches with damask hangings and trappings on festivals is earnestly protested against.

Applications for permission to sell the furniture, tapestries, &c., belonging to churches in the district have at times been favourably received, but, as a general rule, such alienation of ecclesiastical property is absolutely prohibited.

A question has arisen as to the non-national character of the two buildings, the Church of S. Giorgio degli Schiavoni and the Chapel of the Communità Evangelica (which contains a painting attributed to Titian). It has been decided that the first is to all intents and purposes an Italian church and national monument, but the second is now a private building belonging to a foreign (German) community, over which the Ufficio Regionale has no control.

Various monuments in the Church of SS. Giovanni e Paolo need repair, but as the guiding principle of the Ufficio Regionale is to avoid anything in the shape of "restoration," these repairs will consist merely of resetting such portions of monuments, &c., as may be loosened with age or accident, and nothing that is broken or defaced will be replaced.

Numerous references are made to alterations of old palaces and houses, more or less destructive to their historical character, but the Ufficio Regionale can only exercise a control over the outside portions. The ex-convent of the Carmine having been turned into a laundry, the Ufficio Regionale applied for its restitution as a national monument, but it proves to be absolute private property. It has, however, recently been rented by the School of Industrial Art, and the monumental portions are fortunately in safe keeping.

The Municipality of Venice is on the way to purchase several important public monuments. The catalogue of mural tablets, &c., in the city is being completed by Comm. Levy in accordance with the new rules. The schedules of the Ufficio Regionale are being properly filled up by private owners of works of art, but there is sometimes a difficulty in the case of provincial authorities and others, who protest against Government interference with their property. At Chioggia the cam-

* Many of these comparatively small Classic columns may have been stolen from the peristyle of some Greek theatre in the Levant. They were, perhaps, found convenient for ballasting the returning empty galley of the period.

panile of the Duomo has been restored at a cost of 7,000 frs. At Vicenza the great hall of the Basilica Palladiana is causing anxiety, but the movement of the roof is being carefully studied and watched preparatory to important repairs, a scheme for which will shortly be laid before the Ministry. At Padua a list of the ancient painted houses is being formed.

A visit to Venice at the end of the nineteenth century is full of the deepest interest to every student of art and history; and it is with singular satisfaction that an old student revisiting the city finds it so little changed after the lapse of twenty-five years. The modernisations which are so very obtrusive in Rome or Florence have no counterpart in Venice; here no mediæval city walls remained to be pulled down, no opportunity has yet presented itself for the driving of a straight Via Garibaldi or Via Vittorio Emanuele through the crowded "calle."

Singularly deserted by every living vestige or characteristic of the Serene Republic, her palaces abandoned to the desolation of mere showplaces for tourists, or turned into cheap hotels and lodging-houses, her trade reduced to the manufacture of glass beads, the city is the mere shell of her ancient greatness. But although Venice has not kept pace with the rest of the world and is virtually in a state of decay, a probably larger population now fills the city than was the case in Republican times. This population is, however, of the poorest and most squalid order, and gives a very mean impression to the visitors from *terra firma*. The chief modern development to meet the exigencies of this increased population consists in the conversion of one of the largest of the old palaces into the "Monte di Pietà," and other palaces and convents into municipal offices and hospitals. Venice will probably never undergo the *sventramento* common elsewhere in Italy; it will survive in the next century as a curious example of a mediæval mode of life. How far such a system can be continued with a teeming population and modern demands for sanitation, suggests many difficult problems in the near future. The difficulty of disposing of the sewage increases as time goes on, and the condition of some of the small canals is often deplorable. If those which form backwaters out of the small amount of tide which takes place in the Adriatic could be completely closed, so much the better for public health; but the difficulty in the way of circulation, in a town where carriages are out of the question, renders the closing of these pestiferous little canals almost impossible.

Venice will remain for many a year to come the happy hunting-ground of the artist, whether for the mere painting of pictures or for the graver studies of an intensely interesting historic past. Circumstances do not admit of any change in the conditions of its life, and as it is no longer a centre of wealth and commercial activity, the means do not exist for so-called "modern improvements."

NOTES.

Art and Religion.

As usual, the relation of Art to the Church was taken up at the Church Congress; where, however, pretty much the same things seem to be said on the subject every year. Mr. W. Hole spoke in favour of mural decoration in churches, and wished to see a guild or brotherhood of church artists, who would be brought into touch with each other for their mutual help and encouragement, a guild which should include architects, painters, sculptors, workers in wood, metal, and glass —"all who were willing to devote a tithe of their time, skill, and labour to the glory of God and the service of the Church." Mr. Stirling Lee followed with a paper on the divorce between art and the Church, tracing this to the legislation against images in churches in Henry VIII.'s time, which was a check on our national ability at the time when art was making its greatest progress on the Continent. He remarked on what the world would have lost in the way of art had the Popes of that time shown the same "iconoclastic fury." But it must be remembered that the art which Julius II. and other Popes encouraged was hardly religious art; the æsthetic ecclesiastics of that day were not religious—often notoriously the contrary,—and looked on art for its own sake only, and not in any way as a handmaid to religion, for which they cared nothing except in an official sense. As to Mr. Lee's reference to the present attitude of the ecclesiastical law towards "images," we doubt if the mere liberty to set up conventionally accepted representations of the "Crucifixion and of St. John and St. Mary" would offer any very great opportunity to modern sculpture; it would only give opportunity for a kind of conventional religious art. Mr. G. F. Watts's communication in regard to art and religion, read at the meeting, is indeed a fine one; but it may be observed that Mr. Watts says nothing about "church art"; his temple is all Nature.

Memorial Tablets to the Woods.

THE City of Bath has paid a deserved tribute to the memory of the two architects, father and son, to whom the beauty of the city is mainly due, by placing memorial tablets on the houses which they occupied in Bath. These were unveiled, on Thursday last week, by the President of the Institute of Architects, with a certain degree of public ceremonial. One of them is on a house at 24, Queen-square, where the elder Wood lived, and the inscription runs "Here lived John Wood: B. 1704, D. 1754.' The other, to the younger Wood, is at 41, Gay-street, and is inscribed "Here lived John Wood, jun., B. 1727, D. 1781." In commenting on the work of the elder Wood at Bath, Mr. Emerson especially drew attention to the manner in which he had realised the need for a systematic grouping and aligning of buildings, squares, and terraces, in order to produce the best and most dignified architectural effect in a city. In this respect Bath, and Wood's system of building for it, form a standing lesson in regard to city architecture—a lesson much needed in this country. It is true that Wood had an opportunity, in the simultaneous building of a good deal of the city, which very rarely presents itself, in that manner, for immediate realisation. But it is perfectly possible, whenever a new street is formed or a new public building erected, to lay it out in accordance with a predetermined scheme, the details of which can be carried out little by little, but always with an eye to the final effect of the whole. This is the lesson which Bath, as laid out and improved by Wood, has to give us. It is an example of the dignity which accrues to a city from a thoughtful designing and laying out of its architecture and streets in conformity with a broad general design.

The Paris Exhibition.

As the time draws near for the close of the Paris Exhibition, it appears to become clear that, financially, it will not be a success. As far as can be ascertained not half the tickets are sold; the price charged by the hawkers during the last few weeks has never exceeded thirty centimes, and it will certainly become lower. The *concessionnaires* have been holding meetings in which their grievances have been ventilated, and deputations have interviewed the Minister of Commerce. The French people are now visiting it in thousands, carried up in cheap excursion trains from all parts of France. But for them it is a mere spectacle. For the purposes of education and intellectual enjoyment it is doubtful if the day of international exhibitions is not over. Those who desire to see particular subjects, either mechanical or artistic, can do so better at small exhibitions of particular things. Moreover, now that people can move about the world so easily, the products of a country can be seen in it by those who desire to be acquainted with them, so that the *raison d'être* of collecting everything from everywhere in one spot is very largely a thing of the past.

Electric Cables.

MR. A. H. HOWARD, the secretary of the Cable Makers' Association, has sent to all the members of the Institution of Electrical Engineers a paper giving a set of clauses for use in contracts for the supply of electric mains, and a list of twenty-one sizes of conductors, which we are told are to become the standard sizes after October 1, 1900. Eleven of the leading cable companies have signed this document, and presumably have considered it carefully. There is no doubt that the want of standardisation in the specifications drawn up by electrical engineers in the past has been a great hindrance to the progress of the industry. It has prevented makers keeping a stock of cables ready for delivery, as the sizes and combinations of wires necessary to make a cable of given cross sectional area are in many cases very numerous. The cable makers have at last also protested about the insertion of a clause in which the engineer is made the sole arbitrator. They want arbitration, but they think that it is inequitable to make one of the interested parties the only judge. The clause they suggest concerning the guarantee of the cables is a desirable one from the makers' point of view, but we think that it will not satisfy consulting engineers. They wish to limit their guarantee to making good "any fault due to defective material or workmanship" for a period of twelve months after the cable is laid. It is exceedingly difficult to prove that a fault is due to defective material, as the probabilities are that the defective material will be burnt up. Again, the only guarantee for good workmanship is for a representative of the consulting engineers to watch and test the cable as it is being made. Twelve months also is a very short period for faults due to inferior rubber, &c., to develop. Since more than a third of the total expense of an electric station is expended on the mains and ordinary electric tests are nearly useless to test the quality of the materials employed, consulting engineers

will require a more stringent guarantee than the one the makers suggest. We think also that the table of standard sizes suggested is a very poor one. New sizes of wires are introduced which are not to be found in any British, American, or Continental gauge. After October 1, when a consulting engineer specifies for a cable 0·7 square inch in section he will get one made up of ninety-one strands of wire, each strand having a diameter of 0·098 in. A small calculation will show that this is only 0·686 of a square inch in section. Why should he not insist that each strand should be 0·099 in. in diameter, which would give a total section of 0·700 square inch exactly? We could name many youthful electricians who could easily make a far better table.

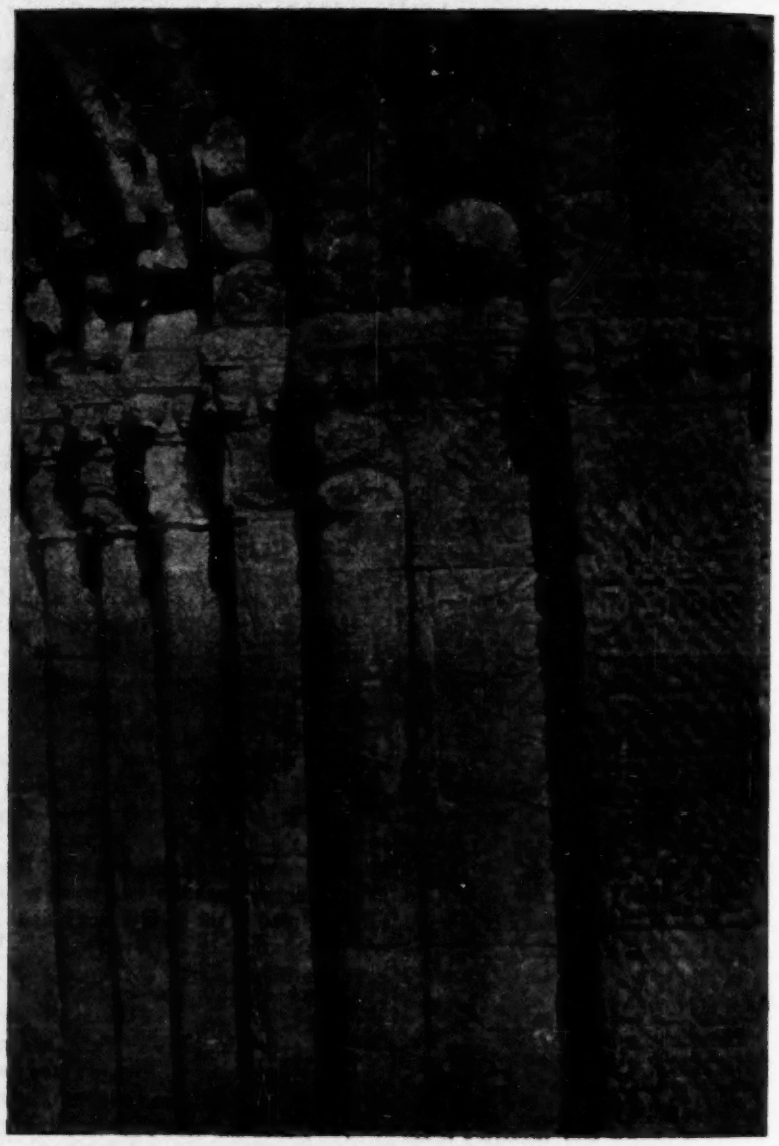
Telegraphic Isolation.

THE recent sudden destruction by fire of the chief telegraph and telephone office at Manchester, according to a correspondent in Saturday's *Times*, suggests the serious question of whether the central office in St. Martin's-le-Grand is adequately protected from a similar catastrophe. In winter-time we are accustomed to the breakdown of telegraphic communication, but this, as a rule, can be remedied in a few hours, as the cause is merely the breakage of a few wires. The breakdown at Manchester was much more serious, and illustrates that such an event may happen at any moment. The fire was apparently caused by the explosion of a spirit lamp in the neighbourhood of the test-room, and the dry woodwork and the inflammable coverings of the wires were instantly in a blaze. The serious consequences that followed such a trivial accident show that it is necessary to make telegraphic stations and telephone exchanges as fireproof as possible. At present there is far too much dry woodwork in them, and many of the materials used for insulating wires burn readily when a match is applied to them. With the high voltages now used in telegraphic work a fire might easily arise from the overheating of a wire. The use of lamp annunciators in telephone exchanges also will make special precautions necessary. The Manchester fire proves that the authorities were to blame, for such a fire ought to have been made a physical impossibility.

Sanitary Areas of Dartford.

DR. R. DEANE SWEETING'S Report to the Local Government Board on the prevalence of fatal diphtheria in the Dartford Urban and Rural Districts, though it chronicles a good many unsatisfactory incidents in regard to water-supply—dry-steined wells, "dipping-places" in the vicinity of polluting matter, &c., sums up with the opinion that "in all probability diphtheria has been imported at various times and in different ways during past years into all of the four sanitary districts of the Dartford Registration District, and that it has spread there commonly by personal infection. In three of these districts, viz., Dartford Rural, Dartford Urban, and Erith Urban, the spread of the disease has been largely aided by school-assemblage. Insanitary circumstances do not appear to have exerted any appreciably direct share in the spread or fatality of the disease, which has rather been kept alive by intermediate links of minor and often trivial sore-throat, connecting together the gaps in the incidence of recognised and notified diphtheria." Among the special points of sanitary import which require attention in each district, it is suggested that wells which are liable to pollution should be as far as possible abolished, and the Kent Company's water extended; in the Erith district the old Erith sewer and its branches, as well as other local sewers discharging on to the Thames foreshore, should be abolished; that in the district generally there should be better provision for flushing sewers and for water-closets; and in all the districts except Erith it is noted that action under the Housing of the Working Classes Act is required in regard to old cottage property. The report concludes:—

"The question of river pollution in the Registration District is one that concerns the Kent County Council as much as or more than the several District Authorities. Hitherto no action whatever seems to have been taken by that body with regard to the pollution of the Rivers Darent and Cray, which flow through three of the sanitary districts of the Dartford Registration District. The abundant pollutions which these streams receive have been described, as well as the points where the River Darent is taken for drinking, and passes over watercress beds. The County Council is evidently the body to take up the question as a whole, since, in all probability, both these streams receive pollutions before they enter Dartford Registration District."



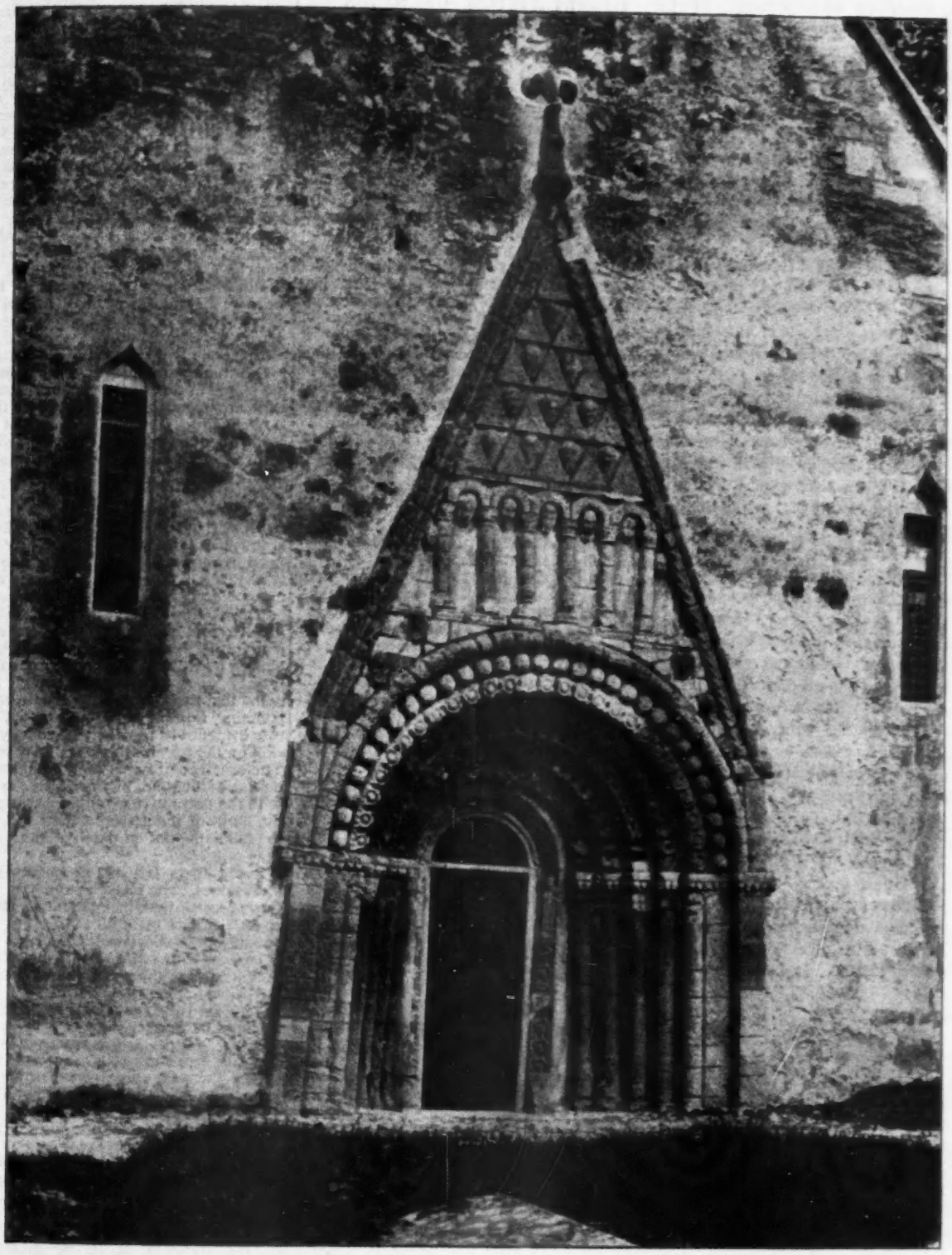
Detail of Door, Clonfert Cathedral.

A Church in the Green Park.

IN the recently-published volume of the Harley papers there is a curious letter, showing that in the year 1713 it was proposed to erect a church at the north-east corner of the Green Park. That it was not built seems to have been the result of the opposition of Harley, then Earl of Oxford and Lord Treasurer. The letter runs:—"Pursuant to your commands I enclose a draft of the grounds desired by the commissioners for the site of a church. It is a corner of the park over against Devonshire House, that would be beautified by such a structure to terminate the houses, and it would put a stop to any further buildings on that side, and is not above an acre. The impossibility of finding another site in this part of the town, which, though it lies near St. James's Church, is in St. Martin's parish, has forced the commissioners to apply to you to intercede with the Queen for her approval of it. *Postscript.*—The prejudice that Devonshire House would receive by such a building is the greatest objection." This letter was thus endorsed by the Lord Treasurer:—"Concerning a church to be built over against Devonshire House. The Queen does not approve that suggestion."

Brechin Cathedral.

THE restoration of Brechin Cathedral, concerning which some particulars will be found in our general news column, though it is being carried out under an able and a very conservative architect, seems to involve a great deal of new work about the ancient



Door, Clonfert Cathedral.

building, which will leave it, we fear, rather like a modern church with some old bits in it. On the other hand, the incongruous flat ceiling and the galleries have been removed, which is so far a gain; and the foundations have been strengthened and rendered secure. The real defence for the new additions is that it is intended to make the church better suited for the spirit of public worship, and, by restoring the old plan, to provide for the seats lost by removing the galleries. This is a practical consideration which may rightly be considered to take precedence of questions of archæological sentiment — it seems indeed to be somewhat the case of Dunblane Cathedral over again; and on the whole it may be said that the balance of reasons is in favour of the work that is being carried out.

Clonfert Cathedral, co. Galway.

We referred briefly, a week or two back, to the work which is being done at Clonfert Cathedral under the present rector, Canon McLarney, who has been making strenuous efforts to arrest the decay of the building and to put it in a more fitting condition for worship. The decayed wooden flooring has been removed, and "specially designed tiles of the most costly kind laid down." We have not seen the design of these tiles, but we should be inclined to think a plain but durable floor would have been more to the purpose than an attempt to unnecessarily thrust nineteenth-century design into the ancient building. The new choir stalls and Canons' stalls, of oak, are of course a necessary fitting for the carrying-on of the service. In the nave the square pews have been removed, the gallery at the west end taken down, and several arches, which had been filled up with brick or lath and plaster, opened out. The wall over the chancel arch was in an unsafe state owing to the decay of an oak beam which partially carried it; it has now been put in a secure condition. Other repairs have been carried out, and in the main we believe a good work is being done there; but when the rector says that he will be grateful "for gifts of chairs, stained-glass windows, vestry furniture, &c.," we have again to put a note of interrogation, and to ask whether it is proposed that the building should be filled with modern stained-glass windows from any or all sources, irrespective of style or design, as if stained windows were chattels, like chairs, for use in the church? We fear the rector's zeal is

not entirely according to knowledge. We give a general illustration and detail, from photographs, of the remarkable twelfth-century doorway of the Cathedral, which we presume no restorer's hand will be allowed to touch.

Tintern Abbey.

CONSIDERING that some time since there appeared to have been some danger of the demolition of the glorious ruin of Tintern Abbey Church, it is matter for gratification that by purchase on the part of the Government it is now at all events safe, and we presume will be well looked after. The expenditure of public money in a purchase of this kind is a somewhat new departure in this country; there was a time when it would have been thought a waste of expenditure on a merely sentimental object; but a different way of thinking on these matters has been slowly developing in the public mind, and a Government which spends money on such an object will have no need to justify itself now.

The Photographic Salon.

THE eighth exhibition of the Photographic Salon is open at the Dudley Gallery. Like the previous exhibitions, it illustrates the fact that there are ways and means of treating photography so as to get rid of its hardness and over-accentuation, and give a landscape something of the effect of a monochrone painting by hand; and that portrait photographs may be arranged, in regard to lighting and in other respects, so as to give them an individualised character—sometimes by showing only the head clearly and "losing" the figure, or by treating an upright figure within a very narrow margin so as to give decoratively selected appearance; or by photographing on very rough paper, as in No. 48, to give the effect of a crayon sketch. Mr. G. Davison's "Tree against the Sky" (61) and his "Pine Glade" (127), and Mr. Hinton's "Summer Rain Clouds" (135) are successful efforts at giving an aerial landscape effect. In "On the Coast of Northumbria" (114) Mr. K. Greger has succeeded, by combining the incidents of a wreck on the flat shore and an effect of slanting sunlight through the low clouds, in conveying a poetic sentiment. But after all this is done, a great gulf separates such work from all that is properly and truly called "art." People may repeat, as much as they please, that they are making photography an art; they can never put it on a par with artists' work, and it is no use making believe. All this is contrivance rather than art. Look at such combinations of landscape and figures, too, as Mr. Robinson's "Blackberry Gatherers" (144) and "Flecked with Sunshine" (185)—what hopeless commonplace compared with a similar scene pictorially treated by a true artist. It is necessary to make a protest on the subject, because we see that even in journals of importance there is a disposition now to accept the situation and to support the claims of the photographers. It will not do.

LABOURERS' COTTAGES, LOUGHLINSTOWN, IRELAND.—A Local Government Board inquiry was recently held at Loughlinstown, in reference to a petition made by the Rathdown (No. 1) Rural District Council for a provisional order authorising the erection of forty-six cottages in the district, under the Labourers' Act. The amount of the proposed loan is 9,200*l*. Several medical men in the district gave evidence as to the insanitary condition of many of the cottages now inhabited.

THE STATISTICS OF SAXON CHURCHES.

BY PROFESSOR BALDWIN BROWN.

I.—INTRODUCTORY.

IN the following papers the subject of Saxon ecclesiastical architecture is dealt with from the statistical point of view. The main purpose of them is to furnish a summary indication of the locality, extent, and character of the various remains of pre-Conquest churches scattered up and down the country. The questions where and in what numbers and degrees of preservation such remains are to be found, and what are the features common to them that mark them off from the monuments of other styles, are the only ones that immediately concern us. The art and ecclesiology of the structures will be only touched on incidentally in certain special cases where it has been thought desirable to single out exceptional examples and to direct attention to those points which make them of importance in the general study of mediæval architecture.

Before dealing with the actual monuments that form the subject-matter of this study, a word may be said about the subsidiary evidence of various kinds which helps us to elucidate the problems of pre-Conquest architecture. It may, in the first place, be assumed on grounds of general historic likelihood that Saxon England was, in proportion to its population, fully supplied with churches. Our old villages that date back to Saxon times were then to a great extent isolated and self-governing communities, and nearly always possessed in each case at least one landowner of wealth and position. The bishops were on their part pledged to the work of church extension, and with the impulse and the power to build both present, it is almost certain that each social aggregate would provide itself with a rustic shrine to be the centre of its common life. Some would go so far as to say that the village church was almost as common a feature in rural England before the Norman Conquest as in the days of Elizabeth or George the Third.

There are sufficient incidental references to churches in legal and other documents of the early mediæval period to bear out this surmise. Numerous churches are mentioned in Saxon land charters and wills and in Domesday, though there is no attempt to give a list of them, to discriminate their different architectural forms, or to indicate which were of stone and which of wood. A Domesday editor has remarked that "to refer to Domesday as in any way giving us correct information as to the number of churches is useless."* Domesday notices of churches are notoriously fortuitous, and vary for no apparent reason in the different counties. The silence of Domesday is clearly no evidence against the existence of churches in the various localities mentioned, but on the other hand the actual numbers indicated in some of the counties and in special places are evidence enough that churches were plentiful. Three hundred and sixty-four are mentioned in Suffolk, 222 in Lincolnshire, 186 in Kent, 132 in Hampshire. Twenty-four localities in Norfolk and sixteen in Kent had more than one place of worship apiece; Norwich city alone possessed fifty-four; Folkestone, Hoo, and Dartford, in Kent, respectively eight, six, and four. One manor in Hampshire, that of Chilcombe, which is said to embrace eight modern parishes, is credited in the Survey with nine churches, a number which would be fully up to modern requirements. Postling, in Kent, which in its fold of the Downs looks as if it had not changed since long before Domesday, had at that time two small places of worship. The churches mentioned in Domesday and the charters are referred to under the three terms *ecclesia*, *ecclesiola*, *capella*, and we are reminded hereby of the division of churches which seems to be indicated in the Latin form of a law of Canute by the terms *capitalis ecclesia*, *mediocris ecclesia*, *ecclesia adhuc minor*, and *ecclesia campestris*.† No definite architectural significance can be attached to these terms. There is one surviving instance of a Saxon *capella* or *ecclesiola* existing side by side with an *ecclesia*, an arrangement frequently indicated in the documents. This is at Deerhurst, in Gloucestershire; but the chapel is in architectural form a nave-and-chancel church of a complete type. The Saxon church at Bradford-on-Avon is probably referred to by William of Malmesbury as an *ecclesiola*, but it had nave, chancel, and a porch or porches.

One caution must be borne in mind in dealing with Domesday evidence. In cases where a church at a certain place is mentioned in the Survey and an edifice of early character is now to be seen on the spot, the tendency has sometimes been to leap to the conclusion that we have a Saxon building before us, though there may be nothing about it of pre-Conquest character. There was time between the Conquest and the Survey (after 1085-6) for Norman churches to be built, and this may have been the case at Albury and Abinger, in Surrey, where Domesday mentions churches, and we find buildings of early Norman date now upon the sites. It is a safe estimate that far fewer than half of the existing structures of pre-Conquest date are mentioned in Domesday, and some of the most conspicuous Saxon monuments, such as those in Northants, are ignored in the Survey. All the places in this county where Saxon churches exist are mentioned, but the entry *ibi ecclesia* is never added, though the church at Pattishall, a pre-Conquest example, is incidentally referred to in connexion with the location of a plot of land.

The presence on a site of carved tombstones and crosses of pre-Conquest type may be held to prove that there existed there in Saxon times a graveyard and in all probability a church. Such monuments, however, no more prove the Saxon date of the edifice in or near which they are now to be found than does the mention of an *ecclesia* at some special village in Domesday involve the antiquity of its present parish church. They do not tell us whether the church by which they were originally located was of stone or of wood, though it may be noted that their number, which in some parts, counting fragments, is very great, is at any rate evidence of considerable activity as well as skill on the part of the Saxon worker in stone. The ornamental forms and the figure sculpture on these stones are of importance in connexion with the decorative details of the churches, but the limits of the present papers will not permit the following-out in detail of the comparisons thus suggested.

Saxon fonts tell us no more than Saxon tombstones, but Saxon sundials have this further value, that, being of stone, they imply a church of this material. A full list of existing Saxon sundials is a desideratum, and would be a document with some significance for the stone architecture of the pre-Conquest period.

The monumental material with which we have primarily to deal consists of the existing remains of ecclesiastical buildings. If documentary notices are, as we have seen, fortuitous, the same might be said almost as confidently about the cases of actual survival. No general principle seems to be involved in the complete or partial preservation of certain examples and the total disappearance of others. We have no ground for saying that the churches which have entirely perished owed their destruction to the fact that they were of wood, while the stone ones were, as a rule, preserved. Local circumstances doubtless determined the treatment of the local shrine in the eleventh as in all succeeding centuries of the mediæval epoch. The timber churches that existed, no doubt in considerable numbers, at the Conquest were gradually replaced by stone structures, and this process is not yet complete, for the wooden walls of one example are still standing at Greenstead, in Essex. Many Saxon stone churches were pulled down and rebuilt by the Normans. At Lastingham, in Yorkshire, for example, there was a Saxon stone church,* but the fabric of the present edifice is Norman. This process of rebuilding has been going on ever since, for Saxon churches, as at Framingham Pigot, near Norwich, have been replaced quite in our own time by modern structures. The cases of complete or partial survival are, therefore, of an accidental or casual kind, and on this ground it may be questioned whether it is worth while to attempt to construct a *catalogue raisonné* such as the one now offered. A list of the sort will embrace not a few buildings that are still more or less completely Saxon, but the majority of the items must consist of little more than remains and indications that have had the good fortune to escape the ravages of time and the zeal of successive generations of builders. What does it avail, it may be asked, to catalogue a number of frag-

* "Domesday for Wiltshire." Lond., 1865, p. lxvi.
† Thorpe, "Ancient Laws," &c., p. 532.

* Bede, iii. 23.

ments of old masonry accidentally preserved simply on the ground that they belong to a specially early period of our architectural history?

It may be admitted that if this work is done merely in the spirit of the collector, it may easily degenerate into something like a "fad." To inventory and label so many hundred specimens of Saxon masonry as if they were postage-stamps or beetles is not the proper way to deal with them. They have a human and historical as well as an architectural value, and this is not to be measured by the number of stones that make them up. A few cubic feet of walling are sufficient to establish for us on the spot a Saxon village church of stone, and this, with all its fittings and surroundings, its porch, its altar, its graveyard, was the centre of the social movements of that rural community that has remained till quite modern times the unit of the national life. It is a monumental link between ourselves and the older Britain of a millennium ago, and a point round which the patriotic imagination may fitly love to play. And further, these same few stones, when taken with other better preserved examples, may call up before our minds a building that in plan and technique may present striking and original features and furnish material for a new chapter in the architectural history of the Middle Ages. Readers of the recent paper by Mr. J. T. Micklethwaite on "Saxon Church Building"* will have noted the evidence there collected of forms and arrangements in our pre-Conquest churches that are abnormal, if not unique, in mediæval architecture as a whole. Since the appearance of the paper some striking confirmation has come to light of the views put forward in it. The discoveries at Barton-on-Humber and at Breamore, Hants (to be noticed in the sequel), are instances of this, and such discoveries must add a new stimulus to the investigation of these instructive and often puzzling vestiges of the past.

This investigation will have to depend largely on a study of features and details, for a very small piece of carving or moulding or masonry may supply chronological information of essential value, and may afford a means of correcting impressions derived from the general appearance and plan of a building. These last are in the Saxon period apt to mislead. Thus, for example, as a basilican church Wing, Bucks, seems naturally to take its place beside the seventh-century basilicas at Brixworth and Reculver, but as a fact, even apart from the advanced form of its crypt, Wing exhibits details that compel us to place it comparatively late. Bradford-on-Avon appears in general character a singularly early church, but when we reckon up its pilaster strips, and note the curious resemblance of its external arcading to that in the interior of the very Late Saxon church at Dunham Magna, in Norfolk, we begin to distrust the impression of great antiquity. On the other hand, the general aspect of the porch at Monkwearmouth, in Durham, would suggest a Romanesque rather than an Early Christian origin, but a careful interrogation of the various details and ornaments leads to the conclusion that the work is in reality of the early date assigned to it.

Hence it follows that the chronological significance of these details is very great, and they will help us better than anything else to arrive ultimately at a scheme of development within the Saxon period. All that is, however, attempted here is to describe and catalogue them, and it should be explained that in the discussion of criteria which follows there is no attempt to deal with the questions of the origin or use or Continental affinities of the various features that have to be passed in review. A study of the evolution of pre-Conquest architecture on the basis of the evidence of features and details is a piece of work much to be desired, but in this place we have only in view the simple question of Saxon or non-Saxon, and the purely statistical standpoint will as far as possible be maintained.

It may fairly, therefore, be claimed that there is more than a merely antiquarian worth in lists and detailed descriptions of pre-Conquest churches, for such must be the basis of any really scientific discussion of the early stages of the development of English architecture. That there is a continuity in this development, in spite of the Norman Conquest, is fully recognised in all serious studies, such as that of Mr. Prior in his "History of Gothic Art in England," and the facts of the primitive period have a significance for the ages of advance and of fulfilment.

In lists and descriptions of the kind spoken of completeness is an object of some moment, and should at least be aimed at, though it need hardly be said that the completeness of the present, or indeed of any practicable list, can be only relative. What is now offered represents a personal examination of about 300 examples, nearly all of which have been signalised by recent writers of greater or less authority as showing signs of a Saxon origin. Other examples no doubt exist that have come under the notice of local observers, though they are not yet generally known, and these would repay investigation. If this investigation, however, were carried out so completely as to cover every visible piece of Saxon masonry in all the British counties, the result would still not be a final one. There is a possibility that at any moment the stripping of plaster from a church wall of uncertain date might reveal unsuspected evidence of antiquity in the masonry below. It is a recognised fact that in a large number of cases the clearstory walls of aisled churches are of earlier date than the arcades which were cut through them in the Norman or later periods, and a good many of these are doubtless survivals from before the Conquest. The following *catalogue raisonné* is accordingly offered with all due reservations, though it has been carried far enough to give a reasonably correct idea of the subject embraced by it.

The system pursued has been to apply certain criteria to the examples offered for analysis, and to endeavour in the first place to distinguish those that have distinct pre-Norman features from the large class of buildings that are pretty obviously of the eleventh century, but are as likely to belong to the second as to the first half of it, and next to decide whether such pre-Norman features are decisive of Saxon origin. The list embraces accordingly three classes of buildings. In about 190 churches distinct pre-Conquest features have been noticed, and about 170 of these are marked in the list as Saxon. Many authorities who have studied this class of monuments would reckon up under this category a much larger number, but in the present state of knowledge a cautious attitude is desirable. Hence the mere appearance of a single pre-Conquest feature has not always sufficed to place a building on the Saxon side of the list, and about a score of examples, some of which really show Saxon details, such as double-splayed windows, are marked "doubtful," because the single feature in some cases hardly warrants a definite decision. Still more numerous have been the exclusions when a building, though of early character, lacks any distinctly pre-Conquest *cachet*, or has features that look suspiciously Norman. Well-known early churches, such as Ovingdene, near Brighton, or Lyminge, Kent, have for these reasons been placed on the Norman side. In regard to these decisions there must be conceded to every compiler of such a catalogue a certain right of independent judgment, the exact grounds of which cannot always be stated. The general aspect of a structure always counts for something in the decision about its date or style, and so, too, does its local position and surroundings. A very small piece of apparently Saxon detail in a structure, combined with a general look of antiquity, or with a broad resemblance to neighbouring buildings where similar detail is far more pronounced, may suffice to place an example in the pre-Conquest list, whereas a single Saxon feature in a structure which in itself and in comparison with its neighbours would be pronounced Early Norman may be reasonably regarded as a case of survival. In other words, the criteria, like a soldier's orders, must be interpreted in the light of common sense, and need not, in every conceivable case, be blindly followed. The writer would be the first to admit that his judgment is fallible, but the decisions on which the catalogue is founded are independent ones, given after a dispassionate consideration of all the evidence within his reach.

A further explanation may be given of the sense in which the word "pre-Conquest" is employed. It refers to style rather than to exact date. Just as the earliest work at Westminster is Norman, though executed before 1066, so buildings that are still essentially Saxon may have been actually reared after the accession of William. From the present point of view the question of exact date is not material. We have seen that there is a substantial reason why it is worth taking trouble to get at the facts of Saxon building. It may be possible by so doing to add a chapter to the great history of the development of the forms of religious architecture in the Middle Ages. If we can establish a Saxon style, or even efforts and experiments which might have resulted in a style, this has been done, and for this we need to mark the distinctions between Saxon work and Norman rather than to find the exact date of this or that particular structure.

* *Archæological Journal*, lii.

STAINED GLASS AT THE PARIS EXHIBITION.

THE art of the glass painter and stainer has made so many advances in new directions the last ten years, that it is much to be regretted the newer influences at work in this craft are not shown in the British Section at the Paris Exhibition. But other countries are not so inconspicuous as we are in this department, and the Britisher will naturally turn to our next door neighbour, the United States, and take note of what our cousins are doing, for they make quite a bold show. The most distinct feature about these American windows is the make of the glass itself. Most of our readers are already familiar with the moulded glass of Louis Tiffany, and the visitor to the Exhibition has the chance of seeing—not, it is true, under the most favourable conditions, for the light is not direct upon the windows—what are the effects American glass painters aim at when they lead this glass together. They are right to value to the utmost the quality of the glass itself, a thing that was lost sight of far too much by the glass painters of a generation ago, and entirely ignored in the last century. In some of these American windows very little pigment is put upon the glass, for by moulding each piece as it is required *chiaroscuro* is obtained in a quite beautiful way; but so far as one may judge at Paris there appears to be an excess of opalescent glass which has a somewhat milky appearance. This may in a strong light disappear, but apart from that, great technical skill and scientific resources—for the making and staining of the glass itself touches the chemical more than the artistic side of the craft—have invariably led to the downfall of the art and its subsequent degradation, instead of its development and progress. The disposition to use your craft merely to display technical advantages and mechanical gains is great, and when this takes place the artist is merged in the artificer and manufacturer. It is not unlike the skilful carver using cherry stones wherewith to display his hand cunning. We know that the glass painters of the fourteenth century, with all their limitations, technical and otherwise, produced some grand windows, in spirit, harmony, and adaptation of means to end without rival; and though we are no advocates of the adherence to usages or customs, that keeping to the letter instead of the spirit of the Middle Ages, and elevating methods, because employed by the old workers, into canons, but on the contrary are glad to recognise the stretching forth towards untried methods which we meet with among the younger men; we do at the same time feel that with all the resources before an American stained-glass painter he must be strictly on his guard lest he should end in merely becoming a sublimated advertisement of materials. One's means can so soon control one, and that seems to be the danger ahead with Americans. It is in the air in their country much more than it is in an old country such as this, this perfecting of means to the exclusion of all else; and individuality goes when that is the chief consideration.

When we examine these American windows as works of art, and, ignoring the mechanical processes involved, look at them as the embodiment of ideas, the expression of an individual, we cannot say that we see the advance here that we do on the technical side. In some cases the flesh is over-painted, and the glass around being almost untouched gives these portions of the window undue prominence. Then that statuesque simplicity which it should be the aim of the artist to secure, if he wish to obtain the full effect of his resources, is wanting, or only partially secured; and it is easily understood why, if, as we have pointed out, the craftsman is all the time thinking of the materials he is using instead of the ideas that should fill his mind. There are no windows in the American section, in our judg-

ment, that are as well designed or coloured as, say, the St. Cecilia or Faith, Hope, and Charity windows in Christchurch, Oxford, by Burne-Jones and Morris, and these have been in the cathedral these twenty-five years. And among the younger men we have seen windows (one we think of by Mr. Louis Davis) in which ordinary glass and methods were employed, and yet the result was delightful, because the artist controlled the work instead of being dominated by his materials; it was the artist's mind and not the manufacturer's that spoke.

Turning to the painted glass of other countries, the impression left upon the visitor is that a nicely-balanced taste, a controlling restraint, would greatly improve the works displayed. The colouring is either heavy or vulgar, and the painters do not appear to understand the proper use of white glass. It seems to us that a fair proportion of white glass should always be employed in a window if it is intended to be gem-like in effect, and this is particularly the case when working on a large scale. Coloured glass should be looked upon to a great extent as gems with white glass as a setting; certainly the most successful windows are designed on this plan, but the foreigner looks upon a church window as an opportunity for using all the coloured glass obtainable, and the result is a *hot*, crude effect, instead of a *cool*, delicate one.

Glass for domestic purposes is better, and there are many admirable examples of windows in which the design is obtained entirely by the leading and the careful selection of coloured glass, *no* pigment being employed. The English craftsman can here learn some valuable lessons in the designing of leading and the introduction of colour as accents. For domestic purposes much restraint should be shown in colouring, lest the effect be more suited to a public-house or restaurant than a private dwelling. Some of the old Dutch and Flemish glass, in which coats-of-arms in enamels with the design around supporting the heraldry carried out in tracing brown and yellow stain on white glass, are in every way admirable. The enamels took the place of gems, and the white glass was only just broken up here and there with paint, which formed opposing lines to the leads arranged on a geometrical plan.

Some of the windows at the Paris Exhibition are planned so that the leading produces the design with the use of coloured glass, and this is very cleverly managed. The coloured glass being sparingly employed is very choice of itself, and here the American makes of glass are seen to great advantage, for our cousins produce some very beautiful coloured glass—quite fantastic, in fact—glass that, twenty years ago, was not dreamed of in a glass-painter's philosophy, for then it never got beyond flashing a ruby on a blue or ruby on a yellow.

The general tendency all over the world is to let the leading take the place of paint on the glass, and to produce the effect by it and the juxtaposition of coloured glass. Morris, to whom we owe so much for having taken glass painting out of the workshop to put it in the studio, used many of his leads in a quite arbitrary fashion, in this matter following the mediæval craftsmen. Where a lead is not really wanted it should be left out, and the rule undoubtedly should be to use leads as outlines as far as is possible, also to keep paint off glass where form can be suggested without it; but on the other hand draperies are much improved ofttimes by delicate patterning, and a judicious amount of shading is also helpful; the dulling of some glass by "matting" also enhances the general brilliancy of the window, for one does not want every part of a church window to be glittering.

It comes to this: that the craftsman should never become the slave of any shibboleth, and this truism he must never lose sight of. It is the rushing to extremes that is so harmful. One generation of craftsmen do a certain thing or work in a particular way, and then another guild of craftsmen, instead of progressing by sure steps, turn aside and try to be original all through, and end by becoming just as great slaves to one method as ever did those who worked before them, whom they deride. The way men will tie themselves down to arbitrary methods is extraordinary, and so much of the painted glass seen in our churches is uninteresting because there is a slavish adherence to the past, the craftsmen being trammelled by precedent instead of being at liberty to learn of every one and use all means and methods that are legitimate in the carrying-out of his ideas. The one good of such a show as the one under review is that the knowledge of the whole world is there focussed, and the visitor should be able to learn at every turn either what to do or what to avoid.

ARCHÆOLOGICAL SOCIETIES.

KILDARE ARCHÆOLOGICAL SOCIETY.—This Society held its annual excursion meeting on the 12th inst. The members assembled at Harristown railway station, and proceeded to Coghlanstown, where they inspected the ruins of the old church and the Eustace "Cross Shaft." We gather from a report in the *Dublin Express* that Lord Walter Fitzgerald read a paper on the antiquities of the place. He remarked that the Eustace family at an early date were the proprietors of this district, and in 1535 Christopher FitzMaurice Eustace, Cotlanstown, was hanged for participation in the rebellion of Silken Thomas, and his possessions forfeited to the Crown. The churchyard of Coghlanstown lies near Storebrook demesne, a short way from the road leading from Kilcullen Bridge to Ballymore-Eustace, and four miles from the former. Near the burial ground to the south-west is a blessed well called St. James' Well, which, the journal of the Society stated, was dedicated to St. Michael. That, however, was a mistake. The ruins of the old church, though much overgrown with ivy, are in a fair state of preservation. Internally the church measures 50 ft. in length and 17 ft. in breadth, with walls 3 ft. 6 in. thick; the side walls appear to be their original height. There is a built-up doorway in the west wall, and above it a window; a little belfry, portion of which has recently fallen to the ground by the growth of ivy, tops the gable end. An arched entrance in the north wall leads into the church, and on either side of it is a small square niche. A special feature is that close beside the entrance on the inside is a doorway leading to a flight of steps, which winds around to a doorway-like opening into the church, about seven feet from the ground, but the steps do not ascend higher. Externally there is a square projection from the wall in which this short staircase is. Between this opening and the east wall is an ogee headed window, and close to it a square niche (the locker), near where the altar stood. The east wall is lit by a handsome little ogee headed window having a double light. In this wall there is a square niche to the right of where the altar stood. The south wall contains a niche near the east end, out of which the piscina projected; two more ogee headed windows are pierced in this wall, and then, opposite to the entrance in the north wall, there is a wide arched recess lit by a narrow-headed window. This recess causes a square projection externally. With the exception of the west and north windows, the remainder have their cut limestone jambs entire; the doorway and windows have a wide splay. There are no interments visible inside the church ruins. The head of a rude square font, pierced in the middle, lies sunk in the ground near the recess, and is formed out of a rough block of granite about 2 ft. square. There are two objects of interest outside the church ruins—an ancient cross base, and portion of a sixteenth or seventeeth century cross shaft belonging to the Eustace family. The cross base is situated on the north-eastern portion of the burial-ground. It consists of a roughly squared granite boulder, 32 in. by 21 in., having a socket cut in it 16 in. deep, and in the side of about 15 in. by 9½ in. The cross itself is not now to be found in the churchyard. The Eustace cross shaft is of limestone; in its present fractured condition it measures 2 ft. 6 in. in length, with faces of 10 in. and 7 in. At the upper end is a projection all round, on which is a socket 5½ in. by 2½ in., which probably held the cross-head. An inscription in raised letters ran all round this projecting band, but a few of the letters can only now be deciphered, owing to breaks and weathering. At the present time this cross shaft is being used as a headstone near the south-east end of the ruins. On each of the faces is a shield, one of which bears the inscription in incised lettering—"Eustace, Lord Portlester," and below it the date 1462. Another shield bears the Fitz-Eustace coat-of-arms, and on the other two are a couple of fleur-de-lys and a serpent. There appears to be nothing else of interest in the churchyard, and no headstones of any age. Quitting Coghlanstown, and proceeding to Ballymore-Eustace 2¼ miles further on, a small ancient cross was pointed out close by the roadway, but rather obscured by the thick hedge which intervenes between it and the road. It is a small, plain, rough, unringed granite cross of ancient date, and stands 4 ft. 6 in. above ground. Across the arms it is 31 in., with sides 14 in. by 9 in. in width. Without digging at the foot of it, it is impossible to say how much of the shaft is below ground, and whether or not it is fixed in a base. There is a tradition that when it was being conveyed towards the churchyard it either got damaged or the conveyance broke down, and so it was stuck in the ground where it now is, namely, on O'Connor-Henchey's demesne of Slanvebrooke. Arrived at Ballymore-Eustace, which was reached about noon, a stop was made at the parish church, which is surrounded by trees on the top of a hill overlooking the village. The graveyard contains two ancient crosses, and close by one of these the party gathered to hear a paper read by Sir Arthur Vicars on the history of the place. The name Ballymore, he explained, means the "great town," the other portion of the name being derived from the once powerful family of Eustace, which sprang from the Poer or Power family in the fourteenth century, and which owned such extensive possessions between that place, Kilcullen and Naas, that the district was at one time called by the annalists "Criche Justasach," or the Eustace territory. Very shortly after the Anglo-Norman invasion of Ireland, Ballymore became one of the principal manors belonging to the Archbishops of Dublin, who erected a castle there for the protection of their tenants and property. It must have seen its full share of war and rapine, as it stood on the edge of the Pale or English land, close to the mountainous country that for centuries sheltered the brave and turbulent septs of O'Toole and O'Byrne, who never lost an opportunity of harassing the new settlers on their ancient patrimony in Kildare, out of which they had been driven by the Normans. Of Ballymore Castle not a trace now remained; its very site is forgotten, though tradition says it stood on Garrison Hill. The paper went on to sketch the history of the castle and its neighbourhood. Ballymore, like most of the other towns in the County Kildare, suffered greatly during the troubles in 1798. Several of the houses were burned, including the Protestant church, and the place now contains no relics of antiquity except a couple of unsculptured granite crosses, which, though ringed, are not perforated. The smaller cross of the two is now only 6 ft. in height. It is fixed in a base, and most of the head is broken off. It stands amongst the graves to the south-east of the church. The other cross is 11 ft. in height above ground. On either side of the shaft near the head is a large boss. Another one projects from the centre of the head on one side only. In comparatively recent times—in 1689—some incised lettering was cut on the arms outside the double ring. The cross stands close to the church on the north-west side. At the east end of the church the foundations, overgrown with briar, of the old church, dedicated to the Blessed Virgin Mary, are traceable. The party next proceeded to a place called "The Piper's Stones." Here, again, Lord Walter Fitzgerald had some information prepared for the members, which he read. He explained that the existing objects of antiquarian interest lying a short distance to the south-west of Ballymore-Eustace are three in number. In the first place there are the large boulders of granite placed in a circle 31 ft. in diameter in the townland of Broadleas Commons, called "The Piper's Stones." They are now twenty-nine in number. Formerly they made up a complete circle of closely-placed boulders, though now there are large gaps in the ring showing where in times past many had been broken up and carried away for building purposes. At a place called Athgreney there is another similar circle of stones, and in the Deer Park, near Blessington, formerly there was a third one, each called "The Piper's Stones," but the latter was demolished years ago for building purposes. Though these stone circles are thought by some to be connected with Druidical worship, they are probably sepulchral monuments, and may have answered both purposes. A quarter of a mile to the north-east of "The Piper's Stones" are the remains of a pagan sepulchral moat, called Knockshee, meaning "The Fairy Hill." Little is now left, three-quarters of it having

been demolished years ago, probably by some farmers, for the purpose of top-dressing the adjoining lands. In Pagan times annual or triennial fairs took place at these moats in honour of a dead chief, and were partly commercial and partly religious gatherings. On the introduction of Christianity it is very remarkable how many of the primitive churches were built in close proximity to a moat. It was clearly intended that the power of the Church should gradually attract the assembled crowd from the moat with its Pagan associations, and draw them under religious influences. Half a mile to the north-west of "The Piper's Stones" is a prostrate granite monolith, known as "The Long Stone." It formerly stood in a small rath-like enclosure now levelled, and which was thrown down in the year 1836. Curious stones, which closely resembled that known as "The Long Stone," are to be found at Furness, Cradockstown, Punchestown, Newtown (Tipperary), Kilgowran, and Mullaghmast. These "Long Stones" were also sepulchral monuments, though at the same time they may have been objects of worship, as we are told in the "Annals of the Four Masters."—This concluded the day's proceedings.

COMPETITIONS.

WALSALL MUNICIPAL BUILDINGS.—On the recommendation of the assessor, Mr. J. Macvicar Anderson, F.R.I.B.A., the General Purposes Committee of the Corporation have recommended the Council to adopt the design of Mr. J. Glenn Gibson, of 4, Gray's Inn-square, London, W.C. The other premiated designs, in order of merit, are those sent in by Messrs. Cranfield and Potter (London), Messrs. Pite and Balfour (London), Messrs. Cackett and Burns Dick (Newcastle-upon-Tyne), and Mr. James A. Bowden (London), each of whom becomes entitled to a premium of 100*l*.

BUILDING TRADES' GIFT TO THE NATION:

HOMES FOR DISABLED SOLDIERS.

WE are asked to announce the following further list of contributions:—

	£	s.	d.
The Birmingham Master Builders' Association, 2nd instalment (per Mr. W. Sapcote)	500	0	0
The Manchester Builders' Association	65	3	0
Mr. Samuel Warburton (Manchester)	20	0	0
The Longridge Builders' Association	9	5	0
Workmen of Messrs. Thompson & Beveridge	7	11	8
Association of Clerks of Works and Builders' Foremen (Bristol)	5	5	0
The Preston Builders' Association	5	5	0
Messrs. J. & W. Simpson, and Workmen	3	15	6
Mr. J. Parsons, and Workmen	3	0	0
Workmen of Mr. Samuel Warburton (Manchester)	2	11	6
Mr. James Kent, and Workmen	2	11	6
Workmen of Mr. A. E. Symes (Stratford)	2	2	0
Workmen of Mr. F. Britton	2	2	0
Messrs. W. H. Lambert & Sons, and Employees	1	10	6
Mr. J. A. Murray, and Workmen (Reigate)	1	4	0
Mr. H. R. Oldrey, and Workmen	1	1	0
Mr. W. Carr, and Workmen	1	1	0
Employees of Messrs. Bray & Pope	1	0	0

TRADE CATALOGUES.

MESSRS. RICHMOND & Co. send a well-illustrated catalogue of gas-heating apparatus of every description. Numerous illustrations are given of cooking apparatus for use in large hotels and restaurants, of hot closets and plate warmers, of water-heaters, and of washing, ironing, and drying apparatus. A water-heater is described which requires no water storage, tank, or boiler, and with which the consumption of gas is automatically regulated by the consumption of hot water. In view of the fact that a considerable proportion of carburetted water-gas is mixed with the coal-gas supplied in many districts, and that water-gas is heavier and requires a different proportion of air to that required by coal-gas, the special "water-gas attachment" figured in this catalogue may prove beneficial in many cases.

The Bon-Accord Acetylene Gas Company send a catalogue of acetylene generators, lamps, and burners. Illustrations are given of acetylene search-lights, of portable acetylene lamps for contractors, and for harbour and railway lighting, of acetylene street lamps, and of apparatus for use in photographic studios. We are glad to observe that a word of warning is given regarding the use of ordinary coal-gas fittings for acetylene. As acetylene gas is used under a higher pressure than that under which coal-gas is usually supplied, the ordinary gas brackets and fittings are generally too defective for use with acetylene. The Bon-Accord Company states that it employs skilled gasfitters, and will undertake the whole work of fitting pipes and brackets for use with acetylene.

We have received from Messrs. Mather & Platt, Limited, Salford Iron Works, Manchester, two beautifully illustrated pamphlets describing their dynamos and motors. One of them was prepared in connexion with their exhibit at the Paris Exhibition, which we recently described. Illustrations are given of many large combined engines and dynamos recently supplied by this firm. Incidentally these prove how rapidly electro-chemical industries are developing in this country. They have recently supplied seven very large combined engines and dynamos to a firm which uses them for the production of caustic soda and bleaching powder. We were glad to notice also that there is a demand for polyphase generators in this country. The pamphlets show an overhead conveyor for carrying parcels from one platform to another of a railway-station, which is of very neat and novel design, and ought to prove most useful. For small powers they still manufacture their well-known "Manchester Dynamo." The steel-clad type of motor made by this firm fulfils all the conditions of the most stringent fire-office rules, and their motor starting switches and regulators are cheap and well designed.

The Consolidated Telpherage Company, of 20, Broad-street, New York, has sent us their "circular No. 7" describing aerial cableways and tubular despatch. In addition to many novelties which we recently described, illustrations are given of an overhead telpher line, at Ampere, N.J., for carrying castings from a foundry to an electric works.

Finch's Sanitary Engineering Company send us a most useful catalogue of underground conveniences erected by them, with practical information for surveyors to assist them in designing others. A whole set of large-scale plans are given, showing the arrangement adopted on different shaped sites, with a short specification of the fittings, and a ruled blank page opposite for memoranda. We are glad to see what seems rather an innovation on some of the plans, but is a very desirable one viz.: the provision of free urinals for women in addition to the penny closets. The catalogue also includes details of water-waste preventers, manhole covers, channels for inspection chambers, lavatory basins &c.; and a short list of weights of animals and men, which is strictly connected with the main subject of the catalogue, since so many of these underground conveniences have to carry traffic over them.

Messrs. Doulton send us their new catalogue of sanitary specialities for hospitals, a department of sanitary work which, as they remark in their preface, has made more rapid advance than any other. In designing these fittings the endeavour has been to use glazed ware wherever possible, to keep everything clear of the floor, and in all operating and hospital workrooms to have treadles for working valves and wastes, to avoid touching them with soiled hands. The catalogue includes the "Simplicitas" closet with a non-absorbent seat; the pedestal "Simplicitas," of special strength; the metallo-ceramic joint as applied to the same type of closet; cast-iron rolled-edge baths with metallic enamelling—we are glad to see that these are treated with entire simplicity, instead of that misplaced so-called "ornament" with which baths are so often disfigured; hospital baths on wheels; glazed-ware lavatories, spray lavatory for operating-room, &c. The drawings are beautifully produced; it is a kind of sanitary catalogue *de luxe* in fact, as far as paper and engraving are concerned.

Messrs. Coligny & Fullford send us their large catalogue of lamps of every description—suspension lamps, vestibule lamps, hand and spirit lamps, stable or garden lamps, &c.; regenerative gas lamps for station lighting; the Coligny-Welch lamp for railway carriages, and the Coligny-Welch signal lamp we presume also for railway use. In the matter of practical efficiency of lamps the catalogue promises admirably; but in regard to the more ornamental kinds, for use in sitting-rooms and halls of houses, the firm would be wiser to get an artist to make them some designs—those which are shown are mostly very commonplace in taste and over-ornamented.

Messrs. John Spencer (Wednesbury) send a catalogue of their tubes and fittings for wrought iron, gas and water supply, with priced schedules of sizes; also wrought-iron coils, pit and mine props, drive points for wells, boring tubes, high-pressure hot-water tubes, iron and steel ascension pipes, malleable iron unions, &c.

The Vandergrift Land and Improvement Company send us a kind of illustrated album of "Vandergrift, Its Homes and Industries," with an embossed figure of the Apollo Belvedere on the back (we do not see the connexion of this decoration with the subject of the book). Vandergrift appears to be "the home of the American Sheet Steel Company, the Chilled Roll Foundry, and the Vandergrift Lumber Company": it is, in short, one of those immense manufactories which have become the centre of a kind of town entirely formed by the residences of the company and the employees. No information is given; it is only a set of pictures intended to convey an idea of the extent of the place, and the charms of its habitations. They omit the small detail of mentioning where Vandergrift is situated, except that the river winding past it is called the Kiskiminitas.

The "Souvenir Worthington" is a pamphlet issued by the Worthington Pumping Engine Company containing illustrations of their pavilion at the Paris Exhibition and of the machines exhibited or at work in the Exhibition.

Messrs. Sissons Bros. (Hull) send a leaflet describing and illustrating some of the tints in their sanitary washable distemper, which they claim covers double the surface of the same quantity of white lead paint, and that the labour per square yard is 40 per cent. less than in laying on oil paint. It is made in sixty tints.

Mr. W. Wilson Cobbett sends a small ornamental advertisement of the "Scandinavia M. C. M." belting for driving machinery, but it only contains recommendations of the belt, without any information as to its material or structure.

Messrs. Johnson & Phillips, of Old Charlton, Kent, have sent us a handsomely illustrated catalogue of their "Ark" lamp and arc lamp accessories. It is devoted exclusively to describing arc lighting and the requisite appliances, and contains a good deal of information which will prove useful to those who are considering the relative merits of the various kinds of arc lamps. This information is often conveyed in a striking manner. For example, a photograph of the carbons used by an "open" type arc lamp in the course of the year is contrasted with the carbons used by a lamp of the "enclosed" type. The former cost 3*l*. 16*s*., the latter only half-a-crown. The lamp itself is favourably known to electricians, and it is stated that there are over twenty thousand in use. Trimming is only necessary once every four or five weeks, and this can be done by an unskilled person. The coloured illustrations in this catalogue are exceedingly well-done, the metallic lustre of the copper fittings of the lamp being almost exactly reproduced. We were favourably impressed with the lamp standards shown, and the design of the wrought-iron brackets.

The catalogue of "English Electric Bells &c.," issued by Messrs. Julius Sax & Co Limited, Eagle Works, Coldharbour-lane, S.E., describes fully the many types of bells, pushes, indicators, &c., made by this firm. We note that there are some entirely new patterns and designs, and several novel appliances. The list of "alarm contacts" for protection against burglary is an interesting one. We have "burglar alarm matting," sold at a few shillings per foot, which rings a bell when trodden on and can be concealed beneath carpets and rugs. There are also "burglar alarm contact frames" which ring when touched, 'thread trap" alarms, &c. A novel direct-reading testing set is described for measuring the resistance of lightning conductors. Very full "specifications" are given of each item in this catalogue, so that customers know exactly what Messrs. Julius Sax & Co. keep in stock. The London Fire Brigade use the system of electric call bells devised by Mr. Julius Sax.

Illustrations.

NEW PREMISES ON THE SITE OF CHRIST CHURCH, BIRMINGHAM.

THIS block of building, which covers an area of over 2,460 square yards, is rising upon the prominent site formerly occupied by Christ Church, Birmingham, against the demolition of which, some two years ago, there was a considerable, but ineffectual, outcry raised.

The new buildings are of Horsley Castle stone with green slate roofs, and are almost entirely commercial in character, comprising for the most part shops, showrooms, and offices, but there are certain suites of rooms which may be adapted for club premises or kindred purposes.

The view given shows the frontages to Colmore-row and Waterloo-street, with a

New Premises, Birmingham. Block Plan.

glimpse of the dome over the circular corner at the junction of Colmore-row with New-street. The block plan shows the general lines of the site.

The façade to New-street will be similar in character to that to Colmore-row, but as yet this portion of the building is not commenced, owing to the unexpired leases of some small shops standing beneath the level of the old churchyard at the top of New-street.

The architects are Messrs. Essex, Nicol, & Goodman, and the builders Messrs. John Barnsley & Sons, both of Birmingham.

HOUSE IN NEW YORK.

THIS house has been designed for Mr. Herbert Robbins of New York on a site of 40 ft. frontage by 100 ft. deep, and to comply with certain special requirements; the object being to provide state rooms and a grand staircase in the manner of early eighteenth-century English houses. The upper part of the staircase is based on the well-known example at Ashburnham House, and owing to the greater brilliancy of light in New York than in London, the light provided from the lantern is ample in this case. The material intended is stone.

The architect is Mr. Reginald Blomfield. The drawing was exhibited at the Royal Academy Exhibition of this year.

DESIGN FOR DECORATION OF AN OVERMANTEL.

THE original drawing of this design, made on brown paper and the lights touched with white, is by Mr. J. Ogden, and was exhibited at this year's Royal Academy. We have endeavoured to reproduce it so as to give as nearly as possible the effect of the original drawing.

The memorandum in the right-hand corner, "scale 2½ in. to the foot," is incorrect for the reproduction, which is, as far as we remember, about one-third smaller than the original drawing; but the words could not be effaced without leaving a scar on the lithograph.

SKETCHES IN CLARE MARKET.

CLARE MARKET itself has a long while since completely vanished, and so in turn have most of the streets, inns, and shops made familiar to us by Dickens, and interesting as picturesque bits of Old London.

While one regrets to see these "links with the past" improved out of existence it must be owned that the locality, from a hygienic point of view, is in a bad way, and there still remain an extraordinary number of dirty, squalid-looking courts and alleys which certainly should not exist.

The proposed new street from Holborn to the Strand will sweep away a large proportion of this neighbourhood, cutting through Vere-street, which, according to an old map, led directly into the original market. The old shop in this street, with its picturesque and somewhat Italian appearance, must have looked directly on to the market square, and is, I understand, to be included in the demolition. Clare-street to-day is but a kerbstone market to which the poorer classes go to buy fish, vegetables, and wearing apparel; many of the houses are shored up, and the work of destruction has already commenced.

Holles-street has already disappeared, and will soon be followed by the greater part of Houghton-street, commencing at the old shop which stands at the corner of New Inn-court, that very undignified entrance into New Inn.

With the advent of the new street the last remains of this old part of London will soon be numbered among the things of the past. Let us hope that the new street—built, as it were, upon its ashes—may be made an avenue of architectural beauty worthy of our great city, and something of which Londoners may feel proud.

GEORGE W. COLLINS.

Books.

The Royal Tombs of the First Dynasty: Eighteenth Memoir of the Egypt Exploration Fund. By W. M. FLINDERS PETRIE. London; Kegan Paul & Co.; and Offices of Egypt Exploration Fund.

ARCHITECTURAL remains occupy but a small portion of the eighteenth memoir of the Egypt Exploration Fund. The work described is that carried out during the winter of 1899-1900. The illustrations include a large number of seals, marks on pottery, plain vases of various shapes, and plans and sections of the tombs in which these were found. As Abydos is a subject for several years' work, this book does not profess to be complete, but is only an instalment, to be followed by further numbers.

The group of royal tombs dealt with here lie closely together, each forming a large square pit lined with brickwork, and surrounded, either on its own level or higher up, by rows of small chambers, in which the domestics of the king were buried. The accompanying plan, that of the tomb of Q3, reduced from one of the plates, shows the arrangement of the central chamber and surrounding cells. It was floored with wooden planks, of which some portions remain, and roofed, so Professor Petrie concludes, with wooden beams, though we do not gather that any of these roofing beams are left. The woodwork appears to have been burned, which Professor Petrie sets down to accidental conflagration from vagabond visitors lighting fires in the chamber. The fact of floor beams having been used, however, to support the floor planking, leaves little room for doubt as to the construction of the roof. All around the chamber in this tomb were large beams of 10 in. to 13 in. deep, and 9 in. wide, recessed to hold the ends of the flooring planks, and with deep mortice holes at intervals to hold upright posts. Some detail yet remains of the wooden floor, and large holes for the roof beams remain in the walls, and in one place "a round cast of the rough-hewn end of the beam." The holes are not opposite to each other, pointing to the fact that there was a central beam to take the ends of the cross ones.

The majority of the illustrations in this issue are of more interest historically than artistically; but we should mention specially the ivory carving shown on Plate xvii., with a figure of a bound captive, which is of more than ordinary interest. For Professor Petrie's remarks on it, and conclusions drawn from it we must refer the reader to the book.

Archæological Survey of Egypt. Sixth Memoir; a Collection of Hieroglyphics. By W. LL. GRIFFITH.—Seventh Memoir; Beni Hasan, Part IV. London; Kegan Paul & Co.; and Offices of Egypt Exploration Fund.

IN the Sixth Memoir the collection of coloured reproductions of hieroglyphic signs is very valuable and curious, and Mr. Griffith, who comments on and explains them, besides sketching their development, is such an acknowledged master of the subject that we do not suppose there is any other English student who can pretend to criticise or correct him. Some of his general remarks as to the eccentricities of hieroglyphic writing are worth quoting, as they throw a curious and unexpected light on the whims of ancient hieroglyphists:—

"There are also *sportive* hieroglyphs. These are often exceptional signs, and always used in an exceptional way, either because of some magical power attributed to them, or in order to present the reader with a puzzle for his amusement, or for his bewilderment—as in secret writing . . .

In the Pyramid texts, signs representing human beings are systematically deprived of their bodies and legs, so that only heads and arms appear. The animals are generally treated in the same way. Apparently this was an attempt to deprive the signs of magic motion. Similarly, in funerary texts of the Middle Kingdom, birds and animals are sometimes deprived of their legs and serpents of their tails. These mutilated signs are of course to be read as though they were complete, and may, for the purposes of this volume, be treated as identical with the complete signs to which they correspond.

Various other tricks of the scribes may be detected. The transferred use of ideograms, and the different employments of certain signs as phonograms, vary with the period and even with the individual scribe. . . . . It may almost be presumed that the further we push back into antiquity the greater exactitude shall we find in the use of the signs. To the early scribes each sign had a distinct meaning connected with its origin; but with the development of cursive writing, and indeed the spread of writing into common use, the scribe gradually made himself independent of the delicate differences which distinguished the forms of allied signs. The tendency was to express words either by one distinct sign or by a group so arranged that the meaning would be unmistakable, even when the individual signs might be confounded. This led to a larger use of determinatives and of phonetic complements, and eventually to a handling of signs as conventional symbols even in hieroglyphic writing, and to the forgetting of their origins."

We have no doubt that, as Mr. Griffith remarks at the close of the chapter, it would be "a stupendous work" to trace the origin and history of each sign minutely through its various uses and forms; he has only attempted here to give some general indications of the nature of these changes.

The present issue is a continuation of the task commenced by the author in "Beni Hasan III." He has been able to give more study to the subject since then, and offers the present treatise as a further step in the study of the history and origins of the hieroglyphic characters.

No. IV. of the Beni-Hasan memoirs is a most fascinating book, giving a number of coloured illustrations of paintings of birds, animals, decorative jars, &c., and also black and white drawings of various implements and processes, including pigeon-traps, weapons, tools, a pair of pillar scales, &c., all of them reproductions of original ancient drawings. The illustrations are mostly from the tomb of Chnemhetep I. Many of the birds are beautifully depicted; two or three different breeds of ancient Egyptian dogs are shown, one of them with a considerable resemblance to a greyhound, another with some of the characteristics of a dachshund. Among the vases figured is a form repeated several times, with three mouths, which appear to have been used for the symmetrical disposal of three large lotus flowers with their stalks inside the vase, as shown on the one which we reproduce. Plate xxi. shows also the whole scheme of coloured wall decoration on the north wall of the shrine in tomb No. 3. The whole volume is one of the most generally interesting which the Archæological Survey of Egypt has issued.

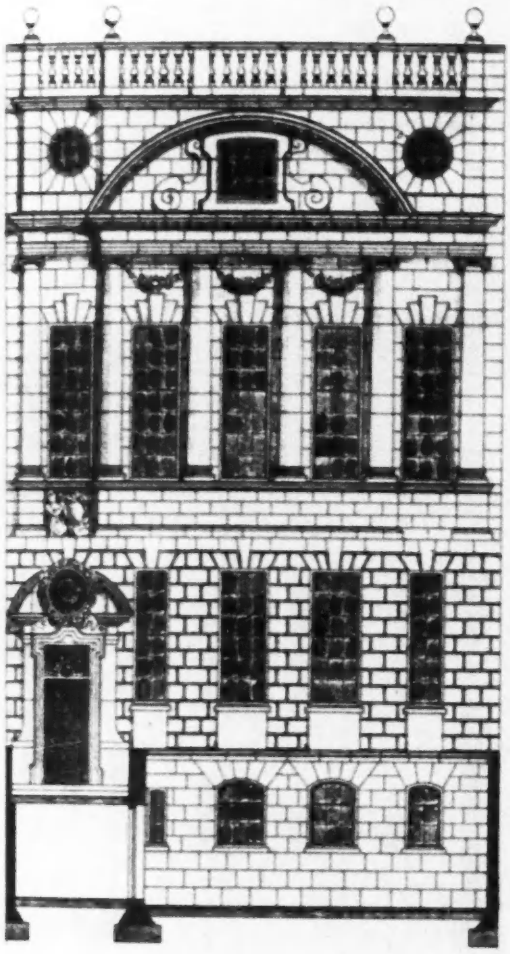
St. Peter in Rome, and his Tomb on the Vatican Hill. By ARTHUR STAPYLTON BARNES, M.A. London: Swan Sonnenschein & Co. 1900.

THE interest of this book is chiefly historical, if we can call that history which seems to depend so much upon tradition, assumptions, and con-

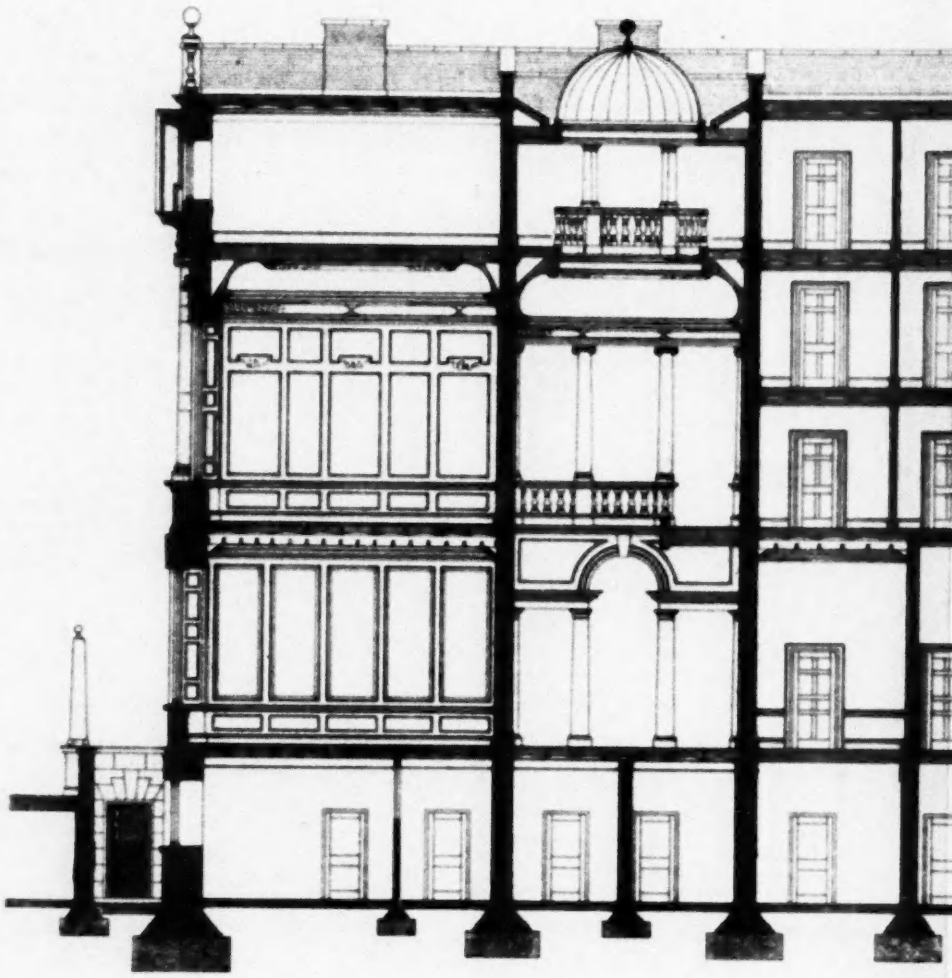
NEW PREMISES ON THE SITE OF CHRIST CHURCH, B[illegible]RMING

INK-PHOTO, SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

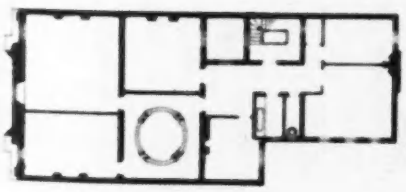
...RCH, B...RMINGHAM.—MESSRS. ESSEX, NICOL & GOODMAN, ARCHITECTS.



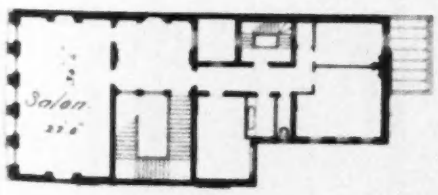
South Elevation (to Street)



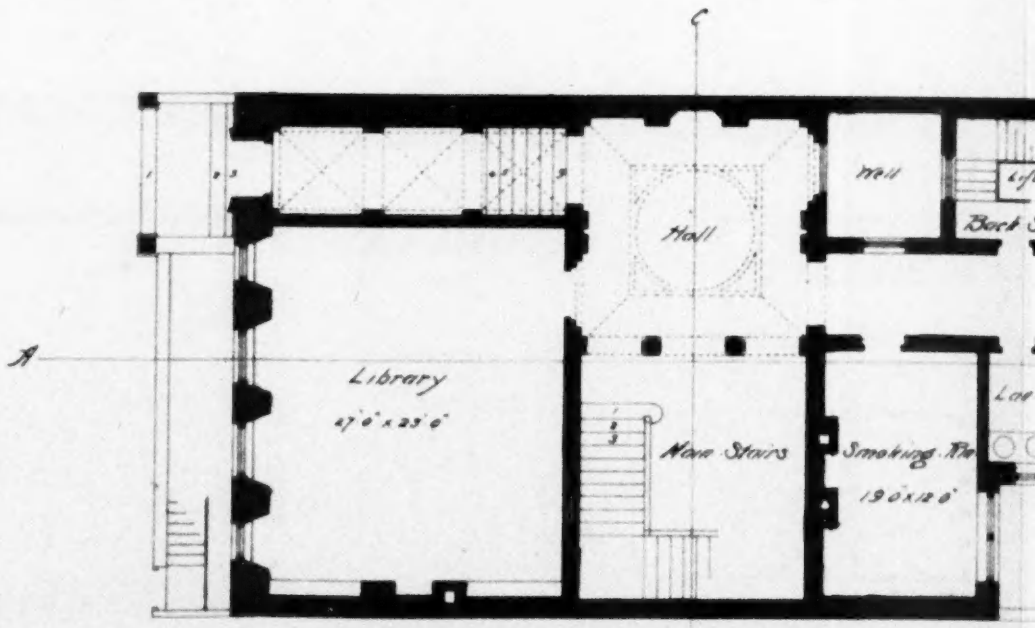
Section on line A B looking



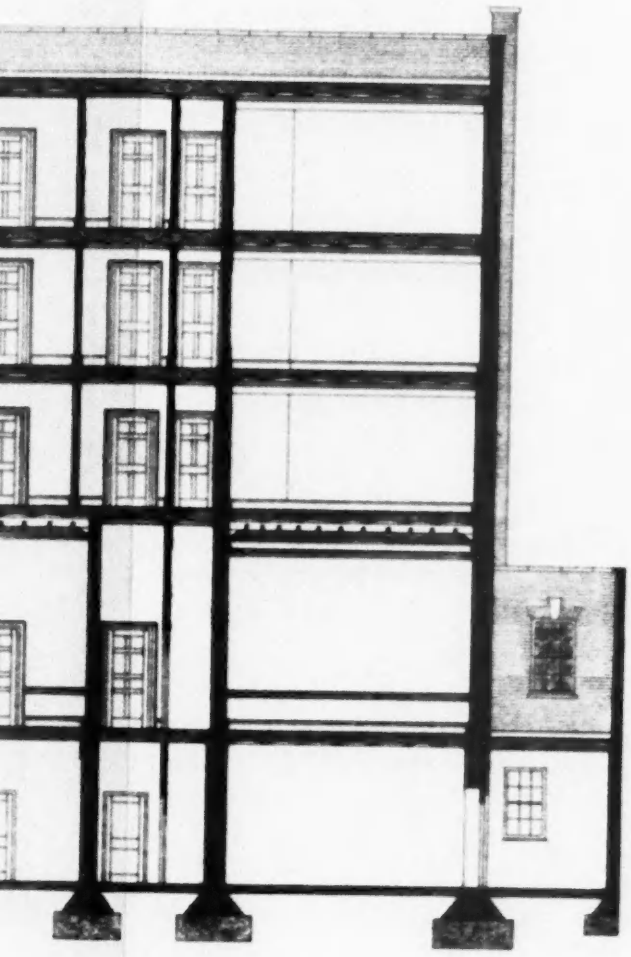
Second Floor Plan



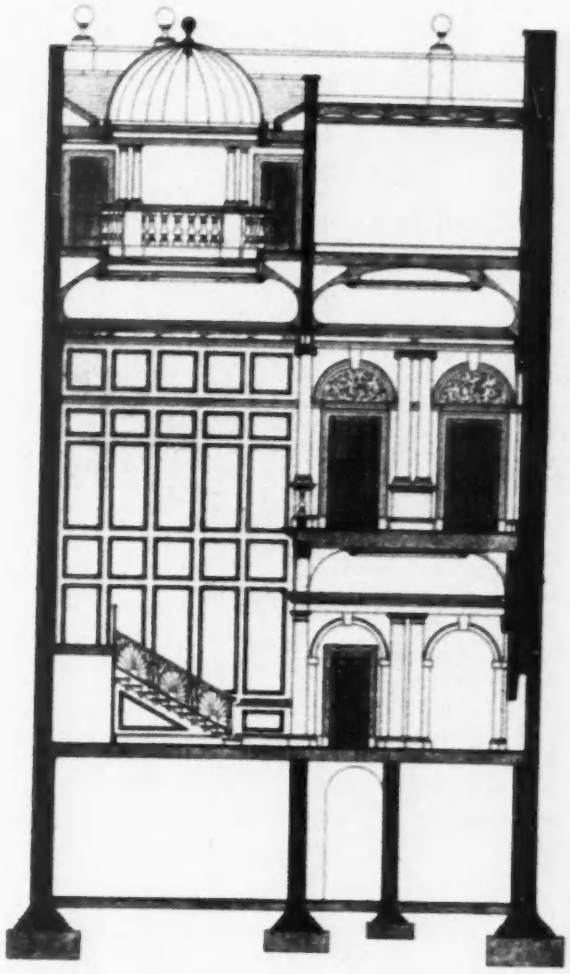
First Floor Plan



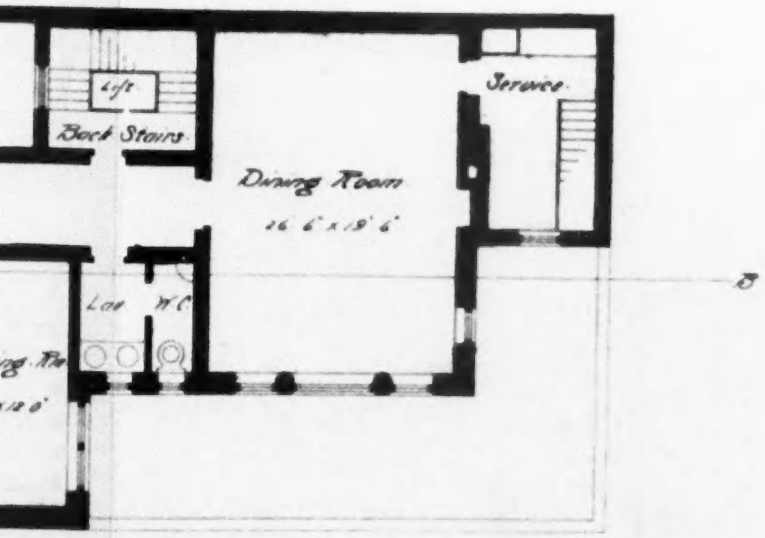
Ground Floor Plan



oking West



Section on line C D looking South



or Plan

Design for a House in
East Eighty ninth Street
New York
for Herbert Robbins Esqr.
1900

Reginald Blomfield, Architect

INK-PHOTO, SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

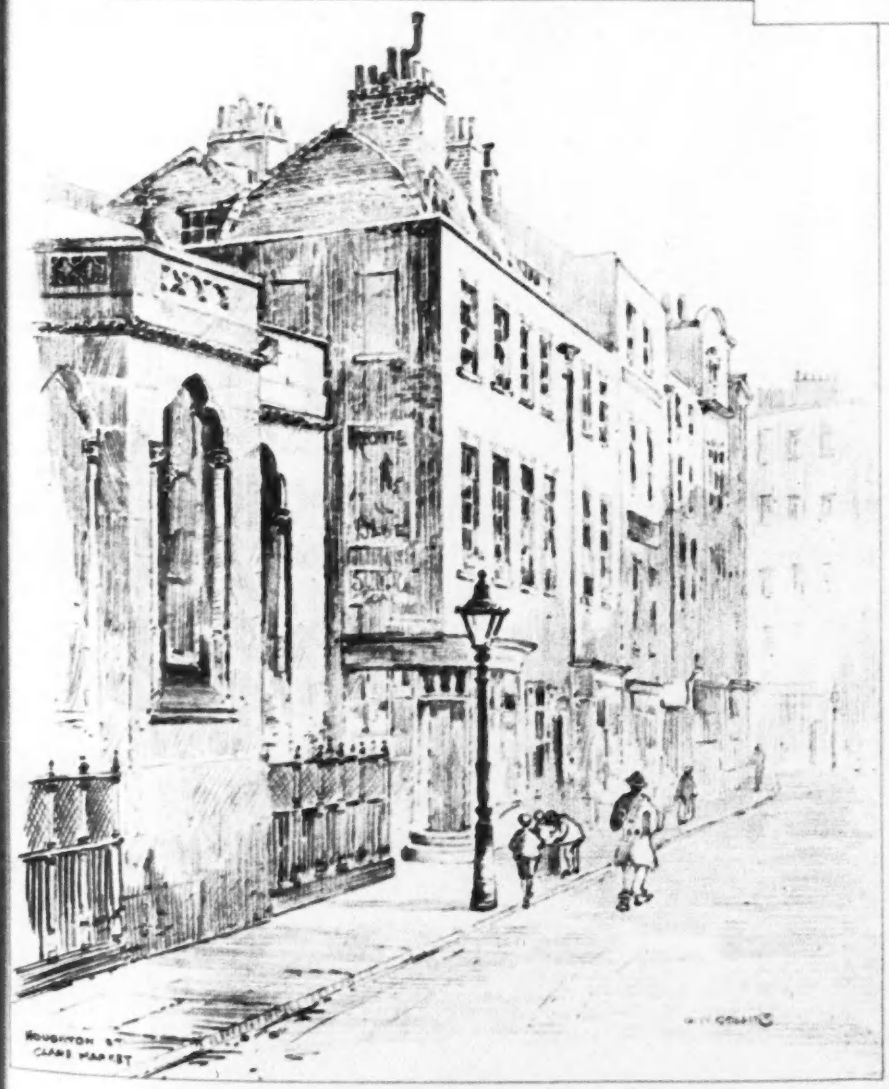
SCHEME FOR THE DECORATION OF AN OVERMANTEL — TO BE EXECUTED IN CARVED OAK
SCALE 2½ INS. TO 1 FOOT

Mr JOSEPH JODEN, SCULPT.

HELIO-PHOTO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

CLARE STREET
CLARE MARKET

OLD SHOP IN
VERE ST CLARE MARKET.

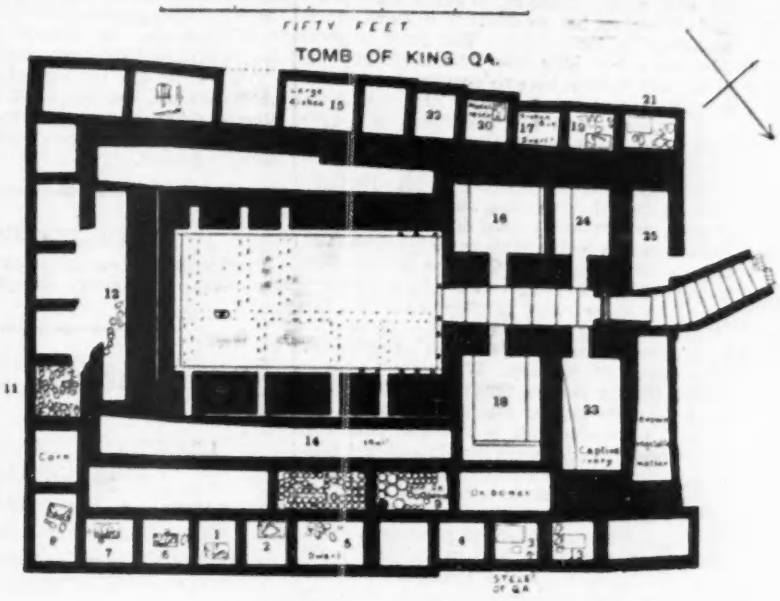


HOUGHTON ST
CLARE MARKET

SKETCHES IN CLARE MARKET.—By Mr. Geo.

By Mr. Geo. W. Collins

From a Painting of a Vase and Stand at Beni-Hasan. [See page 272.



jecture; but it is an attempt to trace out the history of the abodes occupied by St. Peter in Rome and of the transference of his remains from one site to another, and to prove, or to represent it as probable, that they are actually interred under the chord of the apse of the present basilica.

The author is a Catholic, and we take it that the book is especially addressed to Catholics as being of special interest to them; but it proves absolutely nothing in regard to its main subject. The only reason we should mention the book (and the reason, we presume, why a copy has been sent to us), is that there are two or three chapters devoted to the history of Old St. Peter's basilica, and the changes introduced when the new building was commenced, which are of considerable interest and are based on documentary evidence, which can hardly be said in regard to the main subject of the book. This portion of the book is illustrated by a reduced reproduction, as a frontispiece, of Mr. Brewer's remarkable restoration of Old St. Peter's about the year 1450, published in the *Builder* of January 2, 1892.* The most interesting point which the author makes in connexion with this part of the subject is in regard to the large end transept of Old St. Peter's, between the nave and the apse, which is shown in Alfarano's plan made in 1589, long after the western portion of the old basilica had been pulled down, but when it might be supposed that the lines of the foundation walls were still traceable. Mr. Brewer adopted Alfarano's plan, evidently, as the basis of his restoration. But a curious point brought out by the author is that none of the older views of the basilica, dating from before 1500, give any indication of this transept; at the present time, he tells us, at least twelve such representations are known to exist, and in none of them is an external transept indicated, though, according to Alfarano's plan, it must have been far too prominent an object to have been overlooked. The author observes that the first inference from this was to suppose that Alfarano had merely inferred, from the fact that the basilica of St. Paul had such a transept, that St. Peter's would be planned on the same lines, and that his transept was conjectural. But there exists a drawing by Bramante, in the Uffizi at Florence, which shows the ground plan of Old St. Peter's in the middle of a sketch for the new church:—

"Now Bramante died in 1510, so the drawing cannot possibly be later than that year, while it is probably some years earlier. It was made, therefore, either before the commencement of the destruction of Old St. Peters in 1506, or else immediately after that event had taken place, and in either case may claim to rank as strictly contemporary evidence. Now this drawing shows the plan of the church, with one or two slight exceptions to which we will return, to have been just as Alfarano drew it eighty years later, and the accuracy of Alfarano's plan is triumphantly vindicated. In spite of the evidence of the earlier drawings, it is clear that the transverse nave did actually exist, at any rate in the year 1506."

This is a curious dilemma of documentary evidence. The author's proposed solution is this:—There are drawings as late as 1470 showing the church without the transept, but none later. Is it possible, he asks, that between 1470 and 1506 the whole western portion* of the church was pulled down and rebuilt with the transverse nave as shown in the later plans, and then again pulled down when the great new church was projected? It is not at all impossible, for the enthusiasm in regard to the new and grand scheme was so great that there would not be much scruple about removing anything that stood in its way, even if of comparatively recent erection; and the author notes that though there is no record of such a building operation, there is record of very large sums expended on building work in the Vatican account books shortly after 1470. This is the most interesting point brought out in the book. It certainly seems almost impossible that such a feature as a long transept or transverse nave, the same height as the main nave, should, if it existed, have been marked by no indication in the earlier drawings, which, though rude, are obviously intended as correct representations.

The general history of Old St. Peter's and of the gradual building of the new church is embodied in one or two subsequent chapters, and one or two illustrations from ancient engravings (known to students of the subject) are reproduced, which may serve to give the general reader an idea of the romantic history of the piecemeal erection of the great church, and the way the vast piers and arches for the dome stood nakedly against the sky for many years, until the hour came and the man. In the scheme of the book, all this information is only subservient to the main argument as to the position of the actual tomb of St. Peter, erning which we need say nothing further here.

Arbor Vitæ: a Book on the Nature and Development of Imaginative Design, for the use of Teachers, Handicraftsmen, and Others. By GODFREY BLOUNT. London: J. M. Dent & Co. 1899.

THIS is one of the most important of a class of books of which several have appeared in recent years, the main object of which is to go back to the ideas which are supposed to be at the basis or root of artistic form, and to invite the reader to think out the thing anew for himself, as the best and first step towards original production, in place of depending on existing and traditional forms. In his first sentence, indeed, the author says that his aim is "to supply a traditional basis of design for those who are engaged in practising or teaching ornamental handicrafts;" but we hardly think the use of the word "traditional" indicates properly the scope of the book. The idea pervading it seems to be rather to try to lay the foundation of a new tradition, by considering what was the probable origin and first meaning of the principal types of ornament, which are classified and considered in different chapters under the titles "First Patterns," "Leaves and their Classification," "The Budding and Fruiting of the Spiral," Ends and Corners," &c. The book contains a good deal of thought, and is well written and interesting to read, though it is permeated by a good deal of that exaggerated kind of prose-poetry for which the example of Ruskin is mainly responsible. Thus, instead of entitling one chapter "The Filling-up of Spaces" (which is what it really means), the author must call it "The Fulfilment of Space," a misuse of English and an exaggeration of style, as if one were dealing with some question of the millennium, instead of the best method of designing to fill a square or a circle, or any other defined space.

"It is popular to deny that art can have any mission. The a-morality of art has become a catchword and commonplace—the last stronghold of a prevalent anarchy. Art, nevertheless has a message which it will only tell to those who, daring to trust in the sacredness of sense, can see through sense to where body and soul are reconciled."

To the philosophical artisan—a recognised product of the present day—this may seem very sublime, but we doubt whether it will help any one to design ornament, or whether there is really any useful meaning to be extracted from it.

The fact is, that where a man has any innate talent for decorative design, his best school will probably be an acquaintance with the best types of decorative work already in existence, which is what is properly to be called "traditional" knowledge. He who is familiar with the best work of past times will be most able to produce something good and more or less new; to add something of his own to the traditional style. To attempt to go behind all the traditional work and begin

* The reproduction was made with our knowledge and permission.

* The orientation of St. Peter's, it will be remembered, is the opposite of the orthodox eastern orientation; the altar being at the west end.

ab ovo is very interesting to thinkers about art and art history, but we doubt if it gives much assistance to the worker. The most original designer can do little more than add something of his own to what his predecessors have done. The attempt at being entirely original, going back to nature and first principles, is apt to lead to eccentricity rather than to any better quality.

The real recommendation of Mr. Blount's book is that it is an able analysis of a great subject, written with a good deal of enthusiasm and eloquence, and containing a good deal of suggestion for thought. Consequently, though it may not help any one to design, it is interesting to those who already care for the subject, and may awaken interest in those who do not; and therefore it is worth attention by both classes of readers. We must however protest (not for the first time) against the view implied in its pages, that the salvation or renewal of modern art is to come from the artisan and from decorative craft, and that picture painting is "moribund." This is a kind of shibboleth of ultra-modern criticism, which is totally untenable. It takes twenty times more training and more intellect to produce a great painting, or even what may be called a good painting, than to produce a good piece of mere decorative design — wrought metal or silk hanging, or whatever it may be; and the art-artisan who thinks otherwise, and fancies himself equal to the painter and sculptor, is vainly puffed up.

Ancient and Modern Ships. Part I. Wooden Sailing Ships. By GEORGE V. C. HOLMES. London: Chapman & Hall. 1900.

WE presume that this small volume, by the Secretary of the Institution of Naval Architects, is the first part of a treatise which is to be completed by another on modern iron ships. The portion of the subject treated in this volume, wooden sailing ships, is however by far the most picturesque and historically interesting. Some of the antique galleys, propelled entirely by banks of oars, hardly come into the subject of sailing ships, but they are a necessary link in the history.

We can easily understand that the task of making anything like a consecutive history has been difficult, and that, as the author says, the annals of shipbuilding have been, till a recent period, very badly kept, and the drawings and paintings which have survived from the classical period were made by artists who thought more of pictorial effect than of accuracy. Probably, however, these antique representations, mainly on vases, are so far historical evidence that whatever detail they represent had a foundation in fact; the artist did not invent.

The early part of the history, however, and of the illustrations, contains a good deal of the conjectural element; the real interest is in the last two or three hundred years of shipbuilding, where we have reliable drawings and models now existing, and can follow out the development of the modern sailing ship from the crude and unwieldy forms of its predecessors. Of this series a sufficient number of very interesting illustrations are given, from the heavy bulk of the seventeenth century battleships, with their immense built-up sterns and poop lanterns, to the modern "greyhound of the seas" as shown in the portrait of the American clipper of half a century ago, *The Great Republic*, with her long low sharp hull and her astonishing pyramids of canvas. The speed of some of these fast sailing ships, with a favourable breeze, was greater than is generally supposed. One of Donald McKay's ships, the *Sovereign of the Seas*, once kept up a speed of over eighteen knots for twenty-four consecutive hours. They must have been splendid objects under full sail, and one may well regret that steam has put them in turn out of date.

The earlier ship models of the modern period furnish curious examples of the effect of mere conservatism and convention in structures built for a practical purpose. Anything like practical experiment or scientific reasoning must inevitably have shown that the immense poops, and other peculiarities of construction, could have nothing but an injurious effect in a seaway, but shipbuilders of that date do not seem to have had any more regard for scientific reasons in designing ships than a tailor has in cutting out clothes—it was simply "the way we are making them now."

It is interesting to note that one of Henry VII.'s ships, the *Sovereign*, was built under the superintendence of Sir Reginald Bray, who also superintended the building of the chapel at Westminster; so closely were land and marine architecture connected in those days.

We cannot go further into the subject in these columns, but the book is one that will interest many of our readers, and we could have welcomed a larger work upon so fascinating a subject.

BOOKS RECEIVED.

FABBRICATI CIVILI DI ABITAZIONE. Dell' Ingegnere Carlo Levi. 2ª Edizione. (Hoepli; Milan.)

The Student's Column.

LESSONS IN ELECTRICAL ENGINEERING.

12. SYSTEMS OF HOUSE WIRING—"TREE" SYSTEM—SUBDIVIDED MAIN SYSTEM—DROP IN VOLTS—WOOD-CASING—TUBULAR SYSTEMS — ELECTRICAL ACCESSORIES—COST.

BY the Electric Lighting Acts of 1882 and 1888 consumers have the right to demand to be supplied by any company whose distributing mains are not more than fifty yards from their houses. They must serve the company with a notice stating the maximum power they will want, and mention a reasonable date for the commencement of supply. The company lays the service mains to the consumer, usually taking them into a lower floor of the building at some convenient point, where they fix a fusible cut-out on each main. From the end of this cut-out the wiring which belongs to the consumer begins, a loop of wire being left for the company to fix up their supply meter and demand indicator. The responsibility of the company ends at the meters, and all they do before turning on the supply is to test the insulation resistance from earth of the house wiring, and see that it conforms to their regulations. They must, however, maintain a fairly constant pressure at each consumer's terminals, the variations from the declared pressure must in no case exceed 4 per cent., and they must not occur so often as to cause the light to be unsteady.

There are two general systems of wiring a building, namely the "tree system" and the "sub-divided main" system. In the "tree system" (fig. 1) a pair of mains is run to the various floors of the building, and branches are taken from it to the distributing boards on each floor. In fig. 1 A represents the company's double pole main fuse, M the meter, B the main fuse for the house, and C the double pole main switch. D and E are distributing boards for two floors. These boards contain both switches and fuses for lamp circuits to various rooms, and all the switches and fuses should have small ivory tablets placed beneath them describing the circuit to which they belong. In private houses we have in addition separate switches placed in the most convenient place in each room, or sometimes if the room be large a small ornamental switch-board.

In the sub-divided main system, which is now the more popular and is practically universally used when the building is large, we have a main switch-board (fig. 2), and various sub-mains running from this board to the various distributing boards on the several floors. One great advantage of this method of wiring is the ease with which faults can be localised. At the main switch-board we can isolate and test each section of the wiring in turn, and having found the faulty section we can proceed to isolate and test the various circuits on its distributing board and hence rapidly find the fault.

In the case of large consumers the companies often insist that they must be wired on the "three-wire" system (fig. 3). The object of doing this is, of course, that one side of the three-wire system of supply be not unduly loaded, and hence lead to disturbances of the pressure of the supply to other consumers. In this case two meters are requisite, and they are placed on the mains connected to the two "outers" of the supply system. That they measure the energy consumed may be shown as follows:—Let V be the pressure between the positive outer and the middle main, and let A be the current in the positive outer. Let similarly V^1 be the pressure between the middle and the negative outer, and let A^1 be the current in the negative outer. The energy consumed by the lamps between the positive and the middle main is obviously V A watts, and between the negative and the middle main is V^1A^1 watts. Hence the total energy consumed is $VA + V^1A^1$ watts, and thus it can be measured without reference to the current in the middle wire, which is $A - A^1$ amperes. The volt coil of the meter whose ampere coil is in the positive outer must be connected between the positive and the middle main. Similarly the volt coil of the other meter must be connected between the middle and the negative main. In a three-wire sub-divided main system we have three bars on the main switch-board, the bar connected to the middle main being twice as large as either of the others.

Although the three-wire system of supply is a great advantage to the supply company, it is not of any great benefit to the consumer, the saving of copper in the "tree" system being very small and in the sub-divided main system practically nil, as the system is only three-wire up to the main distributing board. An accident of fairly frequent occurrence in this method of wiring is when the fuse on the middle wire blows without either of the other two fuses going. This might happen, for example, if the middle main got accidentally earthed. In this case, if both sides of the system be equally loaded, then taking the pressure between the outers as 200 volts, we shall have 100 volts across each set of lamps and they will burn as usual. Suppose, however, we had two lamps on one side and eighteen lamps on the other, then these two sets would be in series, and we would have 180 volts across the terminals of the two lamps and the remaining twenty volts across the terminals of the eighteen lamps. The consequence would be that these two lamps would be burned out, and every new lamp switched on in that section would be burned out. The remedy, of course, is simply to replace the fuse on the middle main.

If the wires used throughout a building be insufficient in section, then when all the lamps are turned on it will be found that the farther we get from the main switch-board the less bright will the lamps become. The reason of this is the loss of pressure, or, as it is generally called, the drop in volts, that occurs in the mains themselves. In the early days of wiring buildings for the electric light consulting engineers were accustomed to calculate the sizes of the mains on the basis of 1,000 amperes per square inch of section. It was found that with this current density the main heated very little, and that, so far as danger from fire was concerned, it was absolutely safe. For example, suppose that the house were to be wired for 100 16-c.p. 100 volt lamps. These lamps would require 60 amperes, and hence a $\frac{1}{4}$ cable whose section is approximately 0·06 of a square inch would carry the current safely. Suppose that we required 110 yards then, since this cable has a resistance of 0·7,154 ohms per mile, the drop in volts would be $\frac{0·7,154}{16} \times 60$, *i.e.*, 2·683 volts. Hence nearly three per cent. of the total energy supplied would be wasted in the mains, and the lamps burning at a less pressure than 100 volts would give considerably less light. For this reason it was soon found that the smallest main consistent with safety was not necessarily the most economical main to use. We might save a fraction of the initial expense by using such a small main, but only at the expense of a considerable annual loss in light or, to use electrical language, candle hours.

Electricians now generally design the wiring so that the drop in volts at the farthest lamp may be at the most 2 per cent. of the declared pressure. Remembering, however, that a drop of 1 per cent. in the pressure means a loss of 7 per cent. of the light, and that a drop of 2 per cent. means a loss of nearly 20 per cent. of the light, it is always advisable to use as large mains as possible, so long as they do not materially increase the price of labour and fittings. The following example, due to Professor Ayrton, illustrates this point. Suppose that we have ten 16-candle-power lamps at the end of a pair of mains, each 100 ft. long, made of Silvertown cable, quality S. Suppose also that the declared pressure between consumer's terminals is 100 volts, and that the current each lamp takes is 0·6 ampere. The following table illustrates what happens when the drop is

1 and 2 per cent. and also when it is negligible :—

Drop of pressure in volts	0	1	2
Price in shillings of 200 ft. of main. ..		17	12
Approximate light in candles of the ten lamps.....	160	149	138
Approximate current in amperes taken by the ten lamps	6	5·94	5·88
Cost of electric energy in shillings per 1,000 hours at 6d. per unit ..	300	297	294

We see then from this table that by having a 2 per cent. drop we save five shillings on the initial cost of the cable and three shillings on the meter bill for the year, but we lose 11,000 candle hours of light. At 6d. per unit this amount of light obtained with ordinary glow lamps would cost more than one pound. The interest on five shillings, the diminished outlay, would be about 4d. per year. Hence in this particular case we would save about seventeen shillings a year by using the more expensive cable.

An important item in the wiring of a building is the main switchboard. This is made of a non-conducting fireproof material such as slate which is generally enamelled. It is placed in a dry and secure place, and should be carefully fixed and mounted. It is advisable also to arrange that if a fire broke out on the board it would have difficulty in spreading. All the screw holes for fixing it to the wall should be bushed with ebonite bushes so as to prevent possible earths. In addition the boards are usually "split," *i.e.*, the part that contains the positive "bus" bar is separated from the part that contains the negative "bus" bar. In three-wire systems the board should be divided into three distinct portions. The sub-circuits are taken from the metal bus bars, and there ought to be a cut-out on each pole, and, if the circuit be an important one, a switch on each pole, but generally a switch on one pole, is sufficient. An ammeter and voltmeter are nearly always fixed on the board, and by studying their indications a great deal can be learned about the working of the system. The main switchboard ought to have an incombustible frame, with glass front, and be kept under lock and key. In special circumstances an oak, teak, or mahogany frame may be allowed. It ought never to be placed on matchboarding or on the wood walls of lifts.

When arc lamps are used for lighting they always need to have a resistance placed in series with them, otherwise they will not burn steadily. In 100-volt direct current circuits it is customary to run the arc lamps two in series. Each lamp takes about forty volts, and so twenty volts is expended on the resistance placed in series with them. In alternating current circuits, if the resistance be wound inductively, then the pressure may be cut down, the required amount without much energy being expended in the coil, owing to its power factor being so low. In this case the resistance is termed a choking coil. Both resistances and choking coils must be mounted on insulated bases and surrounded with well-ventilated iron cases, as they get hot when the current passes.

There are several systems in use for protecting the cables throughout a house from injury. The one most commonly used is to employ wood casing. It consists of lengths of wood which contain two grooves separated by a fillet or width of wood. The width of this fillet is usually about an inch in the case of main circuits, and about half-an-inch for subsidiary circuits. American whitewood is the wood most commonly employed, as it can be obtained cheaply and is free from knots and flaws. Sometimes the casings are made of oak or walnut moulded to match existing fittings. When the cables are placed in the grooves a capping is screwed on. In order to fix up casings workmen who have been trained as carpenters or joiners are necessary. Whenever casings pass through floors they should be protected by a covering of sheet-iron extending 4 in. below the floor and 2 in. above it. As wood is very absorbent, it ought never to be placed behind wet plaster or in a damp place. Moisture considerably lowers the insulation resistance of the wiring, and may lead to a dangerous leakage of current. If the casings are buried in plaster they ought to be coated inside and out with shellac varnish. When the electric light is to be introduced into a house wood casing is perhaps the easiest and cheapest system to adopt. If the casing be run along the surface of the walls, then it is always a simple matter to get at the cable in order to fix additional lamps or alter the position of old ones.

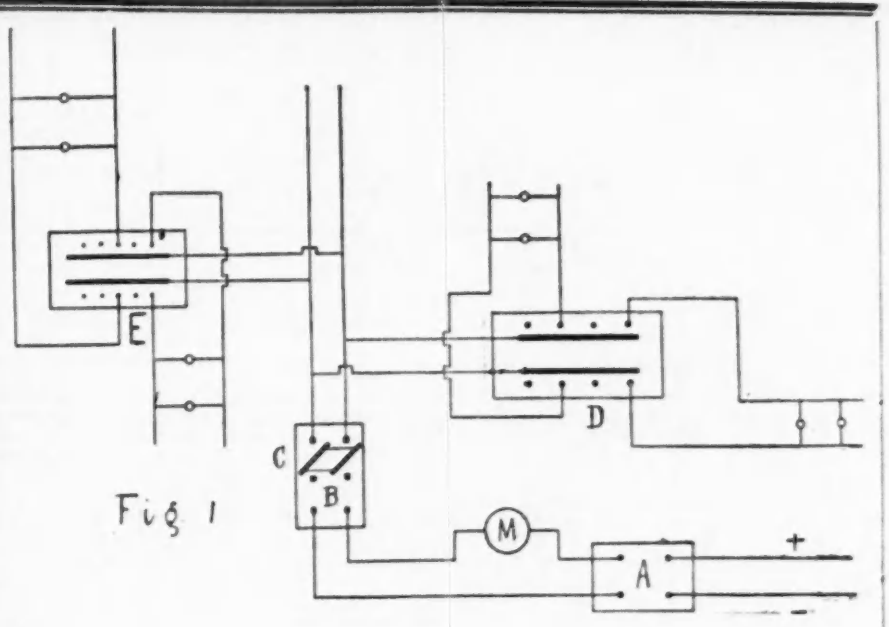


Fig 1

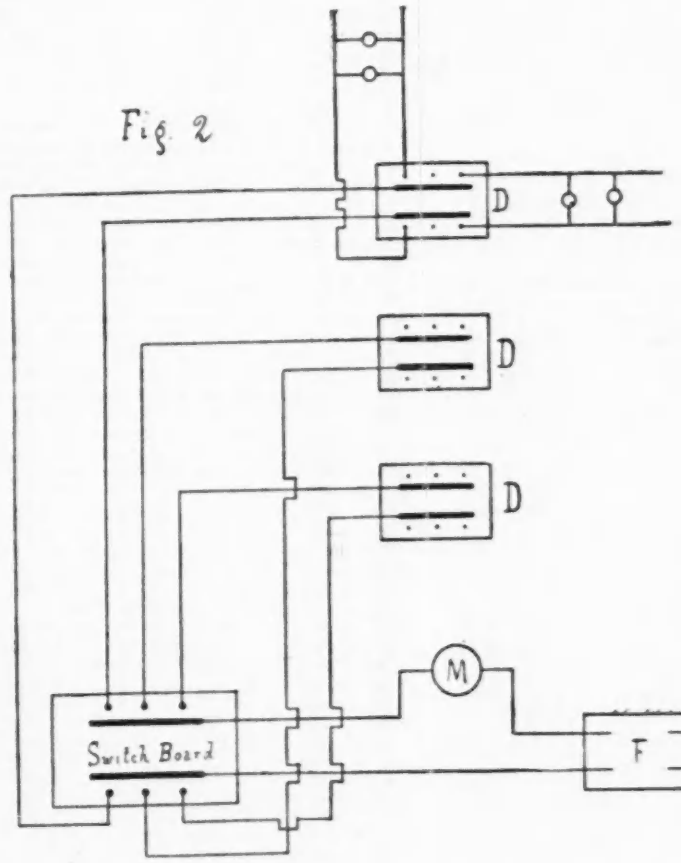


Fig 2

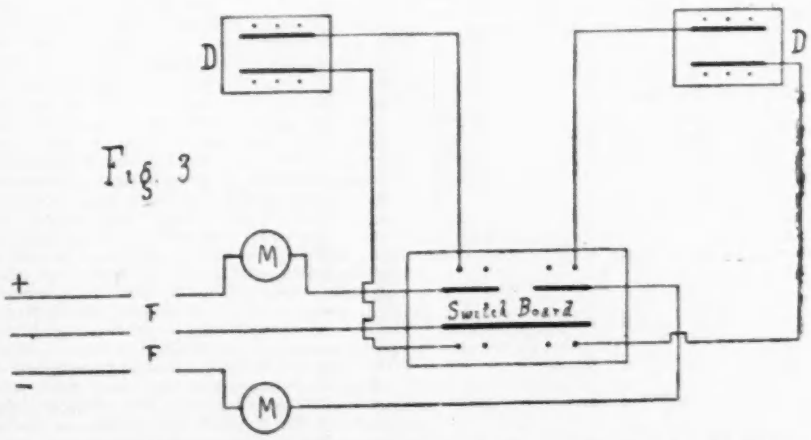


Fig 3

The metal tube system of wiring is in many respects the most desirable one to adopt. In this system all the wires and cables are run in pipes generally made of tempered steel and sometimes insulated in the inside. These pipes can be put in the building during the early stages of its erection, and the cables can be drawn in after the plastering and decorating have been completed. Special junction and inspection

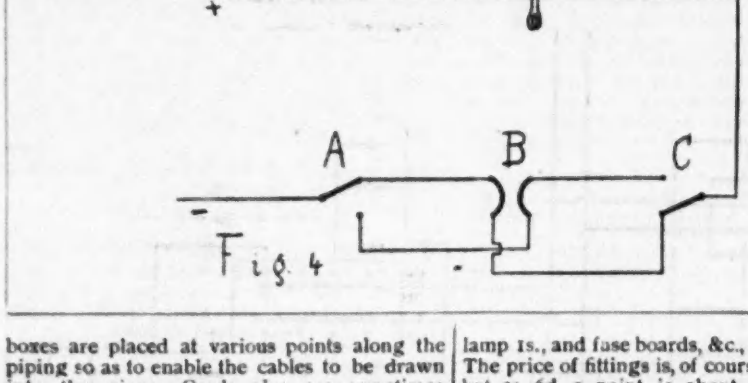


Fig. 4

boxes are placed at various points along the piping so as to enable the cables to be drawn into the pipes. Cords also are sometimes left for this purpose. These pipes form a perfect mechanical protection for the cables, as nails and screws cannot pierce them. After the pipes are fixed they are painted with a coat of oil paint. Where the pipes enter the fuse boxes nuts and washers ought to be fixed on both sides of the outer case and means taken to make the joints watertight. In the "Simplex" system of steel tubing the pipes are formed of thin steel and have a coating of enamel both inside and out to prevent rust. The tubes can easily be cut by a hack-saw or by filing, and a most ingenious system of junction boxes, inspection bends, and T pieces has been developed. This is the cheapest of the tubular methods of wiring and is extensively used.

In the "concentric wiring" system both the conductors are contained in one cable. The "outer" consists of stranded wires placed over the insulation of the "inner," and is in connexion with the earth, so that it is at zero potential. This system cannot be used in many towns in this country, as few companies earth the middle wire of their three-wire system of supply, and so a house wired in this manner would not satisfy the requirements of the supply company, as its insulation resistance to earth would be zero. Where it can be employed, however, this system is a desirable one, as there is very little fire risk and not much chance of getting an accidental shock.

The requisites of a good switch are that it should have a quick make and break, and that the metal surfaces in contact should be of ample size for the current it has to carry. It should be mounted on porcelain or enamelled slate, and the handle must be insulated so that it is impossible to get a shock from it. The introduction of 200 volts into house lighting has made it imperative that small switches should be so constructed that there is no possibility of the metallic cover of the switch touching the live contacts. If a lamp has to be controlled from several points, "two way" and "reversing" switches must be used. In fig. 4 a lamp controlled at three points, A, B, and C, is shown. At A and C "two way" switches are placed, and B is a "reversing" switch.

A little consideration will show that the lamp can be turned on and off at any of the points A, B, and C.

Great improvements have recently been made in cut-outs. In old-fashioned fuse blocks a piece of tin wire was clamped between two screws, often without washers. The variations of temperature soon worked the fuse wire loose at the contacts, and led to the wire melting at the working current, causing unnecessary trouble and annoyance, and leading to the insertion of fuses too large to properly protect the circuit. The spring-clip fuse now generally used obviates this difficulty. There is little fear of this fuse melting prematurely, and the fuses are made of different sizes, so that it is impossible to insert a large fuse into a circuit intended for a small current. In 200-volt circuits double-pole fuse blocks should not be used, as they have been known to arc from one side to the other over the partition. Two single-pole fuse blocks in separate covers should be used. In these circuits, also, fuses should not be inserted in ceiling roses or switches.

It is difficult to give any useful idea as to the relative costs of the various systems of wiring, as the cost of labour and the difficulties to be overcome are very variable quantities. If wood casing be used and the wiring be done properly, then the price varies from the minimum of 20s. upwards. The cost of labour will be about 7s. or 8s. per point to the contractor, the cable about 5s. per point, casing 2s., switches 1s., lamp 1s., and fuse boards, &c., about 3s. a point. The price of fittings is, of course, very variable, but 2s. 6d. a point is about the lowest that could be allowed. The cheapest system of wiring is simply to enclose the two conductors in lead tubes and fix them in position by cleats or metal saddles or clips—in fact, a very similar system to that used for fixing gas pipes when they were first introduced. When this method is adopted the price may be reduced to as low as 15s. per point. It will be seen that the price of electric wiring is still high. If a house could be wired for the electric light as easily and as cheaply as pipes can be put in for gas a great impulse would be given to the electrical industry.

GENERAL BUILDING NEWS.

PARISH CHURCH, RUTHERGLEN, LANARKSHIRE.—The memorial-stone was laid on the 15th inst. of a new parish church for Rutherglen. The building is being erected on the site of the former church in the High-street. The tower of the old building has been left standing a little apart from the new one. The edifice will seat 1,200 persons and will cost over 10,000*l.* Mr. J. J. Burnett is the architect, and Messrs. Douglas, Hunter, & Whitson are the measurers. The contractors are as follows:—Masonry, Messrs. John Park & Son; joinery, Mr. James Morrison; plumbing, Mr. Bowie; plastering, Mr. George Murray; slating, Mr. William Buchanan; heating engineering work, Messrs. James Cormack & Son. Mr. Jas. A. Kennedy is clerk of works.

CHURCH, TWECHAR, DUMBARTONSHIRE.—A church is to be built in the mining village of Twechar. Plans have been prepared by Mr. James Davidson, Coatbridge.

ST. MARY'S CHURCH, COCKERTON, DURHAM.—Memorial stones were laid on the 20th inst. of St. Mary's Church, Cockerton. The church will have a nave 48 ft. by 24 ft., and a chancel 22 ft. 6 in. by 18 ft. Part of the west end is to be temporarily formed into a vestry and porch. The seating accommodation will be 150. The work is being executed in hammer-dressed wall stone from a quarry in Teesdale. The dressings will be of buff terra-cotta from Commondale, near Grosmont, and the roof will be of Ruabon tiles. The chancel stalls are of red deal. The work is being carried out from the designs and under the superintendence of Messrs. J. P. Pritchett & Son, Darlington, and the following are contractors for the various works:—Masonry, Mr. Dodds, Melsonby; tiling, Mr. Wandless, Darlington; carpentry and joinery, Mr. Richardson, Barton; plumbing and glazing, Mr. Coates, Darlington; painting, Mr. Carter, Darlington.

MISSION HALL, NEWPORT, MON.—A Presbyterian mission hall is being erected at the corner of Corporation and Eton-roads, Newport. Mr. David Jones is the builder, and Messrs. Habershon, Fawckner, & Groves, of London and Newport, are the architects.

FRIARY CONGREGATIONAL CHURCH, WEST BRIDGFORD, NOTTINGHAM.—The memorial-stones of this church were laid on the 20th inst. The church will adjoin a school erected on Munsters-road. The building will be in late Gothic style, with a tower 56 ft. high. There will be a nave and side aisles, and at the end farthest from Munsters-road the choir will be situated. At each end of the choir seats will be a vestry, and behind a large parlour, adjoining which will be an infants' room, connected by a passage with the school. The floor of the church, which will have a gradual rise from the pulpit, meeting-room, vestry, &c., is to be of wood. The arcade on both sides of the building will have octagonal columns, and the lower parts will be cased with wood. At each end of the church, the internal walls of which are to be plastered, there will be five large tracery windows, and on each side five clearstory three-light windows, all of which will be glazed with leaded lights. Messrs. Sutton, of Nottingham, are the architects. The cost will be about 5,300*l.*

MEMORIAL VESTRY, PARISH CHURCH, SHIFNAL, SALOP.—A memorial vestry, which has been built at Shifnal Parish Church, was dedicated on the 21st inst. The vestry, which has been built by Mr. Robert Bridgeman, of Shrewsbury, stands on the north side of the chancel, in the corner between the chancel and the north transept, on the site of an ancient building. Codsall stone is used throughout, and the roof is lead. The design was by Mr. W. D Caröe, of London.

WESLEYAN CHAPEL, LLANISHEN.—The memorial-stones of a Wesleyan chapel at Llanishen were laid on the 19th inst. The chapel will accommodate 300 persons, and there will be a schoolroom attached for 50 scholars. Mr. Edwin Seward, of Cardiff, is the architect.

BOARD SCHOOLS, MIDDLESBROUGH.—The "Hugh Bell" Schools in the Grange-road, Middlesbrough, were opened on the 24th inst. The schools are an addition to the Grange-road schools opened in 1892. The architect of the original schools and also of the present additions was Mr. J. Mitchell Bottomley, of Middlesbrough and Leeds. Messrs. Bastiman Bros., of Middlesbrough, were the contractors for the recently executed work; Mr. J. Johnson was the clerk of works.

SCHOOL BUILDINGS, WOLVERHAMPTON.—New buildings, to accommodate 350 infants, have just been commenced at the junction of Bromley-street and Bagott-street, Blakenhall, in the parish of St Luke, Wolverhampton. The structure will consist of schoolroom, two classrooms, and babies' room, with cloakroom, lavatory, and offices, and will be built with local red bricks, tiled roofs, and the floors laid with wood blocks on concrete. The contract is being carried out by Mr. James Herbert, of Wolverhampton, under the supervision of Mr. Fred. T. Beck, architect, of the same town. The cost of the buildings will be about 1,700*l.*

WORK AT BRECHIN CATHEDRAL.—According to a recent report in the *Scotsman*, the restoration of Brechin Cathedral is actively proceeding under the direction of Mr. Honeyman. When the plaster ceiling was removed, the old clearstory was found to be almost uninjured. The old side walls rested on foundations composed of weather-worn stones, with a little clay amongst them, a few stone coffins cut across to suit the thickness of the wall, and a few incised slabs, two of which have been preserved. In the foundations of the west gable of the south aisle there were also found a number of carved stones, part of a Norman building, which had stood on the same site; and in a part of the chancel wall, which had to be taken down owing to its decayed condition, were found several other pieces of Norman work, built into the wall and still retaining traces of coloured decoration. The fragment of the chancel that remains is, however, sufficiently preserved to admit of the same design being continued throughout the portion which it is now necessary to rebuild. In the restoration scheme the design of the windows is repeated along each side. No trace of the east gable remains; it will have to be rebuilt. The architect has everywhere endeavoured to leave the old masonry untouched as far as possible, and it has only been interfered with for structural reasons. The stone used is from the locality, and similar to that which was used originally in the building. The principal entrance will be by a new porch at the north side of the church. The restoration of the aisles involved a fresh design, as there was nothing left to guide the architect as to their former appearance. The new work is in keeping with the character of the old building. For the old foundations in various parts of the structure a bed of concrete has been substituted. The cathedral, as restored, will accommodate over a thousand persons. It is hoped that it will be ready for occupation by this time next year.

CONGREGATIONAL SCHOOLROOM, EASTBOURNE.—A Congregational schoolroom at the corner of Whitley-road and Seaside, Eastbourne, was opened on the 19th inst. The building is of red bricks with stone dressings, and will hold 400 persons The design was by Mr. P. J. Popplewell, of Sutton, Surrey, and the building was erected by Mr. H. Sisley, of Eastbourne. On the remaining portion of the site a church is to be erected.

WESLEYAN MISSION-HALL, YORK.—A Wesleyan mission-hall, at the corner of Skeldergate and Queen's Staith-road, York, was opened on the 19th inst. The building measures about 50 ft. by 60 ft., and is of red brick, with stone dressings. The main entrance is at the corner of Queen's Staith-road. On the ground floor is a schoolroom with classrooms opening from it, and upstairs a large hall with accommodation for 400 persons. The contractors were Messrs. W. Birch & Son, bricklaying; Mr. John Plows, masonry; Mr. W. Usher, joinery; Mr. Morris, plastering; Mr. J. Birch, plumbing; Messrs. Bakes & Co. and Mr. J. Dodgson, painting; Messrs. Grundy & Co., heating; and Mr. Wainhouse, electric lighting. The architects were Messrs. Hornsey & Monkman.

PROPOSED PIER PAVILION, BOURNEMOUTH.—Mr. A. E. Sandford Fawcett, an inspector to the Local Government Board recently held an inquiry at the Council Chamber, Bournemouth, with respect to an application made by the Bournemouth County Borough Council for sanction to construct on the pier and land adjacent to it, at an estimated cost of 37,000*l.*, a pavilion or assembly-rooms, or reading and refreshment rooms, and other conveniences; also for the determination of the period within which they shall repay so much of that sum as they are authorised to borrow without the sanction of the Board, and for sanction to borrow

the further sum required for such purpose. The scheme, which has met with some opposition, was explained by Mr. F. W. Lacey, the Borough Surveyor. From the beach there would be access to the basement, where refreshment-rooms and lavatories would be placed, also the engines, &c., for the electric light and for heating the building. On the ground floor there would be east and west entrances to the pier, independent of the pavilion. The chief feature would be a large concert-hall capable of holding 1,200 people on the ground floor and 500 in the galleries. Reading-rooms and refreshment-rooms would be placed on each side, and provision would be made for tea-room, billiard-room, and large corridors.

CONVENT OF OUR LADY OF SION, BAYSWATER.—The wall of the south aisle of the chapel attached to the Convent of Our Lady of Sion has lately been underpinned and restored by Mr. Alfred E. Nightingale, architect, Albert Embankment. Messrs. Jones & Willis have fixed stained-glass windows, representing the "Incarnation," "Last Supper," "Crucifixion," and "Annunciation."

WORKHOUSE, STEYNING.—The Steyning Board of Guardians have resolved to erect four cottages, and the plans prepared by Mr. Clayton, architect, have been recommended for approval.

MISSION BUILDING, NEWCASTLE.—The foundation-stone of St. Wilfred's Mission building, which is situated in Blandford-street, Newcastle, was laid on the 25th inst. In the basement will be a gymnasium, on the second floor a mission-hall to seat 300 persons, and on the third floor a church-hall. Mr. Charles S. Errington, of Newcastle, is the architect.

METHODIST CHURCH SCHOOLS, &C., FENTIMAN-ROAD, LAMBETH.—The foundation-stones of these buildings were laid on Saturday, the 22nd inst. Perpendicular Gothic architecture, freely treated, has been adopted. The church is flanked on one side by a bold square tower, which is terminated by a small spirelet and weather vane. A staircase in the tower leads up to a small end gallery. A projecting narthex, containing the two main entrances, forms a prominent feature of the design. The dressings are of Bath stone, and the facings of red brick. The seating is arranged circular on plan, so that the whole of the congregation face the preacher. The preacher's platform, or rostrum, is placed centrally in an octagonal apse, where the choir is also accommodated. The organ chamber is arranged on one side of the apse, having organ fronts into both church and apse. The vestries are placed immediately behind the apse. A large schoolroom, with gallery, is provided, together with additional classrooms and other conveniences. The school is placed by the side of the church, facing Fentiman-road. A church parlour is provided, also fronting upon that road. The contract amount for the whole block, including boundary walls, is 6,506*l.*, and is let to Mr. Richardson, builder, Peckham. The architects are Messrs. Geo. and Reginald Palmer Baines, of 5, Clement's Inn, Strand.

CAFÉ, ABERDEEN.—A new café, known as the "Empress," has recently been opened in Union-street, Aberdeen. The architect was Mr. G. F. Milne, Union-street, Aberdeen, by whom the fittings were also designed, and the upholsterers were Messrs. Galloway & Sykes, of the same city.

SANITARY AND ENGINEERING NEWS.

WATER SUPPLY, WHALEY BRIDGE, CHESHIRE.—A Local Government Board inquiry into an application by the Whaley Bridge Urban District Council for sanction to borrow 7,000*l.* for purposes of a water supply, was held at the Mechanics' Institute, Whaley Bridge, on the 19th inst. The inquiry was conducted by Mr. H. Percy Boulnois. The scheme was explained by Mr. Stirling, the engineer.

WATER SUPPLY, SELSTON, NOTTINGHAM.—A Local Government Board inquiry into an application by the Basford Rural District Council for permission to borrow 1,000*l.* for purposes of water supply for the parish of Selston was held by Colonel Langton Coke in the National Schools, Selston, on the 21st. inst. Messrs. G. & F. Hodson, of Loughborough, have been appointed engineers.

NEW WATERWORKS, HALIFAX.—The ceremony of cutting the first sod of the new Halifax Corporation Waterworks at Walsham Dean was performed on the 17th inst. The scheme comprises three reservoirs, one above the other, at the north end of the Walsham Valley, and 1,150 ft. above sea level. They will have a combined capacity of 650,000,000 gallons. The drainage area is 2,325 acres, almost exclusively moorland. The engineer is Mr. G. H. Hill, of Manchester. The amount of the contract is 170,000*l.* The cost of land, extras, &c., will bring up the total cost of the scheme to about 220,000*l.*

LANDING STAGE, &C., PENZANCE.—The Highways Committee of the Penzance Town Council have reported that with reference to the provision of a landing stage, the Surveyor had drawn up two plans prepared by him, viz. :—No. 1, for a landing stage or jetty running from the Esplanade to about 300 ft. in the direction of the rock known as the Elephant Rock, at an estimated cost of 900*l.*; and No. 2, a landing stage or jetty, running from the shingle only, on the same site, at an estimated cost of 365*l.*

WATER SUPPLY, GREAT BADDOW, NEAR CHELMSFORD.—A Local Government Board inquiry has been held at the Corn Exchange, Chelmsford, by Mr. H. H. Law, C.E., an inspector of the Board, with reference to the application of the Chelmsford Rural District Council for sanction to borrow money for experimental works of water supply for the Great Baddow special drainage district and the parish of Springfield. The Medical Officer to the Council said that the rural portions of both parishes derived water from shallow wells, but the urban portions were supplied by works belonging to the Chelmsford Rural Council. Of the total population, about 4,000 were supplied with water from the mains. It was estimated that during the next twenty years the number of persons wanting water would be about 6,000. The amount of water required per head could not be taken at less than thirty gallons. The amount in round figures of water required per day would be 200,000 gallons. At the present time the average supply per head was only about eighteen gallons. In order to eke this out the amount of water used for sewer flushing had had to be decreased. The gathering-ground of the present spring, which was situated to the north of Baddow-road, was liable to pollution. This spring yielded an average of 114,000 gallons a day. The Surveyor explained that it was proposed to sink an experimental boring 10 ft. in diameter to a depth of 350 ft. near the present pumping-station at Great Baddow.

TYNE IMPROVEMENT.—At a meeting of the Tyne Improvement Commission on the 13th inst. a very extensive scheme of dredging in the river was adopted, which would, it was stated, involve an expenditure of more than 450,000*l.*, or 200,000*l.* more than originally estimated, the increase being due to the insufficiency of the original data, the additions to the work originally contemplated, and increased cost of labour and material. Alderman Richardson said it was not proposed to apply to Parliament for increased borrowing powers, but that 25,000*l.* per annum should be reserved from revenue to complete this great work which Parliament and the public imposed upon them.—*Times.*

SOCIETY OF ENGINEERS.—An interesting visit was made by the members and associates of the Society of Engineers on Wednesday, September 26, to the works of the Gas Light and Coke Company at Beckton. The works occupy a position on the River Thames, about one mile below Woolwich, on the Essex marshes, and, being the largest manufacturing works of the Gas Light and Coke Company, produce about one-half the gas supplied by that company. The coal, which is principally seaborne, is brought by steam colliers and unloaded at two T-shaped piers by hydraulic cranes lifting grabs or skips. It is shot into small waggons, which are weighed, made up into trains, and conveyed by locomotives to the part of the works where the coal is required. The waggons are provided with a movable slide so that the coal may be shot from the elevated railway into the coal stores of the retort houses ready for use. The elevated railway, connecting the piers with the retort houses, also traverses the works and provides space underneath for the storage of coals. The carbonising plant consists of 8,404 retorts, contained in fourteen retort houses, and about one half of these are operated by machinery; hydraulic power, compressed air and power transmitted by ropes being used. The retort houses are all provided with a stage on which the stoking is conducted, the space underneath being used for tending the furnaces and disposing of the coke, the bulk of which is shipped into sailing vessels at the wharf. The gas, on leaving the retorts, is cooled and then passed through the ammonia-extracting and the other necessary purifying plant, and, after being measured, is ultimately stored in gas-holders. From the gas-holders it is pumped under pressure to the storage stations in different parts of the metropolis. The daily make of gas, including oil gas, of which about 8,500,000 cubic feet are made, is about 58,000,000 feet. The works include a foundry, smiths', fitters', and carpenters' shops, stores, &c., and every description of plant necessary for repair and maintenance.

WATER SUPPLY, DERWENT VALLEY.—The *Leicester Post* states that the total costs, charges, and expenses of the respective Corporations incidental to the preparing, applying for, obtaining, and passing of the Derwent Valley Water Act, 1899, were Leicester Corporation, 33,078*l.* 16*s.* 8*d.*; Derby Corporation, 30,174*l.* 3*s.* 9*d.*; Sheffield Corporation, 23,716*l.* 14*s.* 4*d.*; Rotherham Corporation, 2,311*l.* 5*s.* 4*d.*; Nottingham Corporation 6,033*l.* 6*s.* 10*d.* Total, 95,314*l.* 6*s.* 11*d.*

EXTENSION OF WATERWORKS, PRESTWICK.—At a special meeting of the Ayr District Committee of the Ayrshire County Council recently, Mr. John Bell, Chairman of Committee, presiding, an application was made on behalf of the Prestwick Water Supply Committee for sanction to borrow 5,400*l.* for the extension of the domestic water supply reservoir, so as to increase its capacity by 21,000,000 gallons. The application was granted.

WATER SUPPLY, RUTHIN.—At a meeting of the Ruthin District Council, held on the 24th inst., the Sanitary Inspector submitted three schemes for supplying the village of Llanarmon, viz., from Tyddyn y Gwynt, on the Bathafarn estate, at an estimated cost of 478*l.* 14*s.*; from Llyn Gweryd, on the Gelli Gynan estate, at a cost of 464*l.* 16*s.* 4*d.*; and from Ffynnon Wenwyl Spring, at a probable cost of 470*l.* 7*s.* 2*d.* The Medical Officer condemned the Llyn y Gweryd scheme, as the water, owing to the quantity of decomposed vegetable matter it contained, was unfit for domestic purposes. Ultimately a committee was appointed to consider the matter, and report to the next meeting. Mr. J. D. Lewis, engineer, Denbigh, was provisionally appointed to prepare plans, specifications, &c., of the proposed scheme for supplying the districts of Llandyrnog and Llangynhafal with water.

STAINED GLASS AND DECORATION.

ST. BARNABAS CHURCH, KENTISH TOWN.—This church has lately been decorated throughout from the specification of Mr. Alfred E. Nightingale, architect, Albert Embankment, London.

FRESCO, ST. COLUMBA'S CHURCH, SUNDERLAND.—On the 24th inst. the Bishop of Durham unveiled a fresco in St. Columba's Church, Southwick, Sunderland. The artist was Mr. Eadie Reid.

MEMORIAL WINDOW, ST. NICHOLAS U.P. CHURCH, ABERDEEN.—A stained-glass window has been erected in this church in memory of the late Rev. Mr. Walton. The window is symbolic of Faith, Hope, and Charity. The window was designed and executed by Mr. Henry F. David, in the workshops of Messrs. G. Donald & Sons.

WINDOW, ST. JAMES'S CHURCH, ABERDEEN.—The vestry of this church have accepted the design for the large east window of the church which has been prepared by Mr. Douglas Strachan. Four large lancets, which form the chief part of the window, are to be filled with representations of the four Evangelists, each with his appropriate symbol. In the large circular opening at the crown of the window Christ in glory, surrounded by the choir of angels, is to be represented, while the two smaller circles beneath are to be occupied by representations of Moses and Isaiah, the whole window thus representing Christ surrounded by the Heavenly Intelligences, the Law and the Prophets, and the Evangelists. The spandrels have been filled with flowers and fruits emblematic of Christ, as the rose, the lily, the vine, and the pomegranate.

FOREIGN.

FRANCE.—The scaffoldings having been removed from the Gare de Lyons, one can now see the three groups of sculpture placed under the attic. They are the work of MM. Baralis, Gascq, and Charpentier, and represent Mechanism, Steam, and Electricity. Two large figures of "Lyons" and "Marseilles" crown the façade.——M. Guadet, who is directing the rebuilding of the Comédie Française, hopes to get it finished by December 15, so that it can be inaugurated on New Year's Day.——The jury on the open competition for the erection of a monument in honour of the miners at Lourches (Nord) has awarded the prize to the design by M. Theunissen. The pedestal has been designed by M. Moyaux, architect, and on it is placed a statue of Mathieu, the architect, who discovered the coal beds in the Pas-de-Calais. The statue is surrounded by symbolical figures, and stands on a block of coal. At the back of the pedestal is a group of work people, men and women, and the sides represent a gallery in a coal mine with the strata of coal showing.——At the beginning of November, the monument erected to the memory of M. Carnot, at Lyons, will be inaugurated. The monument is the work of M. Gauquie, and consists of a column 18 metres high, ornamented with escutcheons bearing the French cock. The figure of Carnot is leaning against this column, the base of which is decorated with four groups; a woman in mourning, symbolising the town of Lyons; a lion; and two young people personating the alliance of France and Russia.—— The Municipal Council of Oran has adopted the design of M. Mouriez, architect, for the construction of a theatre, which is estimated to cost 850,000 francs.

AUSTRIA.—Sketches are invited by the administration of the fourth communal district of Vienna for a large monumental fountain; the competition closes on October 25 next.——Particulars concerning the competition for the Lanner-Strauss monument have been drawn up by the Artists' Association of Vienna. It has been decided to restrict the competition to German and Austrian artists; to offer prizes of 2,000, 1,500, and 1,000 kronen respectively for those sketches placed 1st, 2nd, and 3rd in order of merit, and to close the competition on December 31 next.——Considerable interest is being evinced in the erection of the proposed monument to Queen Elisabeth in Buda-Pesth. The work is to be designed and executed by Hungarian artists only, and will not be commenced until after March 1 next. The Municipality of Prague have invited Czech architects to send in sketches for large additions to the old town hall, and the author of the first premiated design is offered as much as 10,000 kronen.

INDIA.—The directors of the North-Western Railway have sanctioned the expenditure for water-supply works at Bibinani, in the Quetta district.—— The Bombay-Baroda and Central India Railway Company are about to concentrate the locomotive arrangements at Fatehgarh, at a cost of more than

1¾ lakh of rupees.——It is proposed to construct a light railway between Maldah and Rajmehal.——The Punjab Government is about to be approached by the Simla Corporation, which desires to make a very large expenditure in connexion with municipal improvements.——The survey for the Rameswaram extension of the Pamban branch of the South Indian Railway, from the station of Mandapam, across the Pamban reef to the island of Rameswaram, is now complete. This branch will form part of the connecting link between India and Ceylon; and in the meantime will be very useful for native purposes, as giving direct access to the sacred shrine of Rameswaram (one of the seven sacred shrines of India), and will be the means of opening up a new harbour on the southern side of the island.

UNITED STATES.—Efforts are being made in Philadelphia towards securing the extension of Fairmount Park, or Boulevard, and Messrs. Schermerborn & Reinhold, architects, have devised a plan for a concourse extending from a point near the centre of the city to the Green-street entrance of the Park. The plan amongst other things provides for a boulevard, 275 ft. in width, from the north side of Carlton-street. The total length is about 5,000 ft., and the estimated cost 3,000,000 dols. It is stated that the proposed road will reclaim a practically abandoned and undesirable district, demolishing several slum neighbourhoods, and generally be a great improvement to the city.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. William A. Pite, architect, has removed his offices from 3, Upper Montague-street to 11, Hart-street, Bloomsbury, W.C.

EXPERIMENTAL ROAD-PAVING, FORE-STREET CITY.—An interesting experiment, which if successful will to a certain extent effect a revolution in street-paving, is now being made in the City. Hitherto, in the case of asphalt the paving has been laid in such a way as to necessitate an upheaval of a considerable section in the event of its becoming necessary to repair pipes, &c., below the surface. A new system is now being given a trial. The paving consists of flags that are 9 in. square, and are composed of 1½ in. of hardened asphalt and 1 in. of cement. The flags are laid on mortar, the asphalt side uppermost, with a bed of cement. The principal advantage claimed for them is that they may be taken up and re-laid with the utmost ease and the minimum of expense. If a pipe needs mending only about a dozen blocks will have to be removed. At first the flags are dark grey in colour, but it is stated that after a week's traffic they will become light grey. As far as the ratepayers are concerned the result is a matter of very little moment, inasmuch as the pavement is being laid on the condition that no charge shall be made unless the experiment proves thoroughly satisfactory. If at the end of a fixed period it is shown that the new system is equal as regards durability to the existing one, the Corporation will pay the bill; otherwise, no claim whatever will be made. The experiment is being made in Fore-street, between Moor-lane and Finsbury-pavement; and the pavement is being laid by the Val de Travers Company, Limited, Hamilton House, Bishopsgate-street Without.—*City Press.*

CITY ENGINEER'S REPORT, BRISTOL.—After explaining the nature of the preparations for the visit of the Queen to Bristol to open the Convalescent Home, Mr. T. H. Yabbicom, the City Engineer, in his annual report remarks that during the year private streets to the extent of 5,908 yards, at a cost of 12,745*l.* 7*s.* 2*d.*, have been made up by Corporation workmen, under Section 150 of the Public Health Act, 1875, at the expense of the owners of the property abutting thereon. Private streets to the extent of 1,436 yards, and involving a cost of 2,898*l.* 17*s.* 5*d.*, have been made up principally by contractors in accordance with contracts entered into by the late St. George Urban District Council, and apportioned by the Corporation. All these private streets have been declared highways to be re-paved hereafter by the city, and added to the list for street watering, making a total length of streets declared highways of 4·17 miles, at a cost of 15,644*l.* 4*s.* 7*d.* The average cost of this work has been 7*s.* 2½*d.* per foot run of frontage. Wood paving has been substituted for the road material formerly used in the city during the year to the extent of 8,095 superficial yards, and at a cost of 5,183*l.* 11*s.* 4*d.*, at an average cost of 12*s.* 10*d.* per yard. The total area of wood paving in the city repaired by the Corporation during the year was 160,967 superficial yards, independent of the portion maintained by the Tramways Company. The area of macadamised highways repaired during the year was 402,256 superficial yards, in which work 39,563 tons of material were used. The cost for labour, hauling, and material used for highways was 21,850*l.* Respecting sewerage, amongst other work, 621 ft. of old sewers were destroyed, three tidal valves were fixed, and five cleansed. The cost of sewer cleansing and reconstruction executed during the year, and chargeable to the general district rate, was 11,523*l.* The hydraulic paving plant was working for four and a half months, and the quantity of work turned out was by hand, 395 coping stones, and 299 edging stones; by machinery, 5,582 yards of paving slabs. The cost of working the destructor and repairs was 1,499*l.*

ORGAN, DUNKELD CATHEDRAL.—An organ has recently been placed in Dunkeld Cathedral, in the gallery. The oak case for the instrument is carved in Gothic character to harmonise with the old oak wood-work in the cathedral. The case was designed by Mr. A. J. Murray, architect, of Aberdeen.

STREET IMPROVEMENTS, MANCHESTER.—At a recent meeting of the City Council it was resolved to reinstate in the Manchester Corporation Bill (1901) a clause for the widening of Corporation-street, on condition that satisfactory plans defining the area and the properties to be affected were meantime approved by the General Purposes Committee, which had recommended the postponement for a year at least of the request for Parliamentary powers in the matter. At a meeting of the Improvement and Building Committee the subject again came up for discussion, and this Committee confirmed the action already taken up on the question by unanimously agreeing—"That in the opinion of this Committee compulsory powers should be obtained to acquire the whole of the properties bounded by Hanging Ditch, Cannon-street, Market-street, Corporation-street, and Market-place, and that the City Surveyor be instructed to submit plans, which are to be laid before the General Purposes Committee at an early date." The estimated cost of the scheme, so far as purchases alone are concerned, is about 500,000*l.* No decision has been arrived at as to what class of buildings shall be placed on the cleared area, and the Committee are in no way bound as to their future action in that respect, but they stand by their original recommendation that Corporation-street, in the locality indicated, shall be widened to twenty-five yards from its present width of sixteen yards.—*Manchester Courier.*

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

10,711.—FOLDING-RULES: *J. G. Lilley and F. W. Lilley.*—For locking the joints of a measuring rule when it is opened a sliding bolt is arranged within a dove-tailed groove above the central hinge, and a similar bolt is devised for each of the hinges upon the arms of the rule, the latter bolts being passed through notches cut in the hinge pins.

10,716.—A BALL AND FLOAT VALVE: *S. Robertson.*—The valve, which is adapted for flushing or supply cisterns, is fitted so as to slide in a sleeve or cylinder which is attached to the casing, the valve having grooves for packing rings which are kept apart with diaphragms or webs; a deflecting outlet or drown pipe directs water against the cistern's side in its flow from a chamber formed around the water outlet, by which contrivance noise and shocks are obviated.

10,752.—A MACHINE FOR WORKING STONE: *T. A. Currie and G. E. Currie.*—Power-driven hammres and tools are employed for dressing and surfacing the stone, an eccentric or crank with its connecting-rods drive two pivoted levers, whose ends operate in slots which are cut in the hammers, that are formed of side-plates. The side-plates have several other plates, which constitute their working faces, and buffers at the remoter ends of the slots are provided for the hammers. The stone can be dressed on more faces than one in any required direction by an adjustment of the position of the bearing-blocks and the throw of the leavers.

10,774.—A TOOL-SLIDE FOR LATHES: *F. G. Wilke.*—The two parts of the slide have inclined surfaces, and a screw to adjust the tool's height moves the slide's upper portion. A rotary cutter operates upon the work-blank, which may be clamped upon the slide. The slide-rest is described as being available for lathes or other metal or wood-working machinery.

10,798.—PLASTIC COMPOSITIONS: *F. A. Wheeler & S. W. Eells.*—The material is intended to serve as a substitute for wood and stone and for the making of flooring, wainscotting, doors, and various hollow ware articles; its chief constituent part is a wooden or other fibrous pulp, whilst, for fireproof goods, asbestos fibre, mingled with talc, ashes, &c., is used instead of the pulp; after it has been wetted and mixed with potassium or sodium silicate the fibre or pulp is kneaded with pounded lime, when it is ready for moulding or baking, zinc white or white lead or slaked quick-lime being added if a white finished article is desired, or calcined pulverised magnesite, soaked in chloride of magnesia or some other chloride may be mixed with the compound. For hardening the moulded goods their surfaces should be coated with a solution of magnesium or other chloride.

10,830.—SIPHONS: *W. Ross.*—A float operates within a cylinder, into which the siphon's shorter leg is introduced. Water will flow into the siphon through a valve that opens upwards, but the valve becomes closed when the pull-chain is used for pressing the float downwards and starting the flush. A heavily-weighted piston which will descend through its own weight may be adopted instead of a float.

10,831.—GRABS: *H. B. Fleming.*—From a curved bar are hung, with ropes or chains, a pair of pivoted forks whose upper ends are joined with toggle-levers which carry a spring-catch. When the grab is loaded the catch is caused to engage with a hole in the curved bar. When the catch is freed by a pull upon the rope the forks will fall into the opened position and will thereby liberate their load. The catch may be mounted so as to slide in the frame, and be held with a stretched ring of rubber, or it may be pivoted in the frame and be retained in its place with a spring. For moving granulated material the prongs of the grab can be filled up with plates.

10,832.—PROPS FOR MINING PURPOSES: *W. Balmer.*—Props, after the telescopical kind, are made of flanged tubes that will slide inside one another, and are packed with coal dust, stone, or some similar friable material. When it is desired to remove or lower the props, the filling material is taken out through holes that are cut in the lower tubes. Caps or covers may be provided for the holes if necessary.

10,856.—TREADS OR STEPS FOR LADDERS: *A. E. Fairman.*—The ladder, which will serve for a gangway when it is turned horizontally, is equipped with steps that are pivoted on to the string boards or sides as well as on to cross bars, which are secured with bolts to parallel metal bars set lengthwise and pivoted underneath the platform.

10,874.—TILES FOR ROOFING PURPOSES: *C. Wicke.*—The tiles are fashioned with upper V-shaped ribs and recesses, also with under ribs that will engage with the recesses of the lower tiles, and with lower grooves that will engage with the ribs of the tiles below; hanging ribs are made for engagement with the roof battens, and projections on the tiles interlock with dovetail-shaped grooves cut in the sides of the adjacent tiles. For the manufacture of the tiles is devised a cover, which is hinged on to a table, and carries two pivoted ribbed arms whereby the ribs and recesses are to be fashioned. The material is gathered away from between the knives affixed to the cover-plates by means of a cutter or scoop. For removal of the goods from the mould are provided vertical rods, projecting through the base of the mould and affixed to a plate which is worked with a treadle.

10,905.—STAGING FOR BUILDING PURPOSES: *M. Perret.*—A staging for use in the making of concrete floors, &c., is formed of boards supported upon bars that slide the one within the other, are joined with clips, and have pivoted hooks or angle-pieces which will rest upon the supports or joists. The bars, made of either wood or metal, have cross-sections of ribbed, angular, or channelled shapes; and, in order that the retaining-clips shall neither project above the bars' upper edges, nor interfere with the laying of the boards evenly, they are caused to slide upon ribs made upon the sides of the bars.

10,917.—A MACHINE FOR USE BY CARPENTERS, WHEELWRIGHTS, AND OTHERS: *C. W. Ferguson.*—The machine is devised for sawing, boring, mortising, and turning processes alike. It comprises a band-saw mounted upon two pulleys and a circular saw carried round an axis. Both the saws are mounted upon the ends of two radial arms, in order that the axis may be lifted or lowered, and that the band-saw may be tightened. If a chuck or a boring-tool takes the place of the circular saw, a screw and a lever feed the spindle forwards; and if the machine is to be worked as a lathe a back-centre can be held in a bracket bolted on to it. The drilling machine will serve for mortising purposes.

10,945.—A FASTENING FOR BRUSH HANDLES: *J. H. Hill.*—For a removable fastening of the handle to the stock a ferrule is affixed to the former, and is provided with a pin that engages with a bayonet-shaped slot cut in a socket secured to the stock.

10,965.—AN APPLIANCE FOR WATER-PIPES IN TIMES OF FROST: *N. M. Hopkins.*—To prevent the pipe from bursting when the water is frozen the inventor causes air or gas to be forced with a pump into the main supply pipe or by the means following:—Within a chamber which is joined to the service pipe by a passage (to be opened or closed with a cock), is contained a float that carries a valve, whilst lugs or rails prevent the float from sinking too low. To the service pipe should also be attached a nozzle that shall extend beyond the passage into a sleeve that is flared at both its ends. For vertical pipes an expansion-chamber is adopted. The invention is supplementary to that specified in No. 27,528 of 1898.

10,970.—PAINTING OF SURFACES FROM A DISTANCE: *F. F. Redman.*—A telegraphical arm, which is pivoted to a block upon a trolley, carries a spray-producer, which may be either pivoted or weighted and fitted with a guide-rope. Two guys at the sides support the arm, and at its back is another arm which engages with a spring and a nut upon a pivoted bolt; other arms and pulleys bear upon the surface which is to be painted or covered and retain the spray-producer at a certain distance from the surface. Tubes and a valve supply compressed air to the spray-producer, and a detachable frame, mounted upon the trolley, holds the paint and a pump, which, together with a stirrer, can be worked with either a hand-wheel or a motor to be turned by air drawn from one of the supply tubes.

10,999.—AN APPLIANCE FOR CRANES: *W. H. Wise.*—The object of the invention is to enable that with the winding-in of one of the slewing-ropes the other shall be paid out; the outer ends of the slewing-ropes are fastened upon opposite sides of

the crane, the ropes are passed around pulleys, and are then secured at their inner ends to the opposite sides of an endless chain loop which is driven by a motor.

11,005.—A WINDOW APPARATUS: *R. Leggott.*—For opening and closing purposes are employed a lever, links, and a notched sliding-rod; a spring pin which is pressed into a notch of the rod holds the window in position when it is opened; the opened window is secured by means of a clamping screw, and when it is closed by means of a pawl or catch that has been forced, through the action of a compressed spring, into engagement with the hook of a bracket.

11,016.—SPIGOT AND SOCKET PIPE-JOINTS.—*R. Ewing.*—A jointing for stoneware and other pipes is effected by moulding a ring or band upon the shoulders in the bottom of the socket and forming small shoulders upon the faces of the bands which will take plastic material, and upon the faces of the spigot bands; upon the spigot end and mouth of the socket may also be fashioned bands and rings, cement being filled in through holes in the socket; the faces of the rings are curved when elastic packing is not inserted between the rings of the spigot and the socket.

11,078.—MORTAR FOR BUILDERS' USE.—*W. J. Chrystal.*—The compound is made of lime-waste, vat or soap waste, sand, ashes, or similar silicious materials, ground together in a mortar-mill, and previously roasted or dried if it is desired to keep the compound in bags; for a boiler or pipe covering some fibrous material—such as hemp waste, crude asbestos, cocoa-nut fibre, refuse from paper-works, or esparto grass—is added to the composition, together with clay to make it adhesive and plastic. The mortar is described as being suitable for building purposes, as well as being a fireproof, vermin proof, sound proof and non-conducting substance.

MEETINGS.

FRIDAY, SEPTEMBER 28.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. J. Priestley, B.A., &c., on Sanitary Law: Introductory remarks, Public Health Acts—English, Scotch, Irish; other Statutes relating to Public Health; By-laws (models, &c.), Regulations, Orders, Memoranda, &c. 8 p.m.

SATURDAY, SEPTEMBER 29.

The London and Provincial Builders' Foremen's Association (*Memorial Hall, Farringdon-street*).—Monthly Meeting. 7.30 p.m.

MONDAY, OCTOBER 1.

Society of Engineers.—Mr. Robert Henderson on "Paper-Making Machinery." 7.30 p.m.

WEDNESDAY, OCTOBER 3.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. J. Priestley, B.A., &c., on "Sanitary Law; Public Health London Act; Metropolis Local Management Acts; By-Laws and Regulations in Force in the Administrative County of London." 8 p.m.

Builders' Foremen and Clerks of Works Institution.—Ordinary meeting of Members. 8 p.m.

THURSDAY, OCTOBER 4.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. J. Priestley, B.A., &c., on "Sanitary Law, Factory and Workshop Acts, Smoke Legislation, Food and Drugs Act, 1899." 8 p.m.

FRIDAY, OCTOBER 5.

The Architectural Association.—Annual General Meeting. Address by the President, Mr. W. Howard Seth-Smith, and distribution of prizes. 7.30 p.m.

Sanitary Institute (*Lectures for Sanitary Officers*)—Dr. J. Priestley, B.A., &c., on "Duties of a Sanitary Inspector, Outdoor." 8 p.m.

Civil and Mechanical Engineers' Society.—President's address by Prof. R. H. Smith. 8 p.m.

SATURDAY, OCTOBER 6.

British Institute of Certified Carpenters.—Meeting at Carpenters' Hall. 6 p.m.

Northern Architectural Association.—Visit to Co-operative Societies' Building, Blandford-street, Newcastle.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

September 10.—By THOMAS CROXTON (at Hinckley).

Nuneaton, &c., Warwick.—Moxon's Farm, 133 a., f., r. 160*l.*	£2,975

September 14.—By Messrs. SPELMAN (at Norwich).

Thorpe-next-Norwich, Norfolk.—The Red Lion, p.-h., f.	2,200
Thunder-lane, six freehold houses	940
Thunder-lane, two plots of building land, f.	130
Blofield, Norfolk.—A freehold house, and 1 a. 0 r. 34 p.	100

September 18.—By AUSTIN & Co.

Caterham, Surrey.—1 to 6, Providence Villas, u.t. 93½ yrs., g.r. 34*l.*, r. 154*l.*	925

By SCORELL & LAKE.

Westbourne Pk.—4, Modena-st., u.t. 66½ yrs., g.r. 8*l.*, r. 38*l.*	335
6, Gadsdon Mews, u.t. 66 yrs., g.r. 4*l.*	145
Leytonstone.—237, High-road, u.t. 46 yrs., g.r. 7*l.*, r. 28*l.*	375

By STEPHENSON & ALEXANDER (at Cardiff).

Southerndown, Glamorgan.—Craig-yr-Eos, and 18 a., f.	3,600

By Messrs. COBB (at Rochester).

Cliffe, Kent.—Battway Farm, 3 a. 2 r. 28 p., f.	1,220
Reed-st., two cottages and plot of garden land, 0 a. 3 r. 12 p., f.	590
Rochester-rd., three cottages and 0 a. 1 r. 6 p., f.	330
Rochester-rd., Walnut Tree Fields, 6 a. 0 r. 6 p., f.	£330

September 19.—By W. R. NICHOLAS & Co.

Baydon, &c., Wilts.—The Russley Park Estate, 116 a. 0 r. 30 p., f.	5,000

By BAXTER, PAYNE, & LEPPER.

Chelsea.—95 and 96, Cheyne-walk, f., r. 185*l.*	3,480

By FOSTER & CRANFIELD.

Romford, Essex.—1 and 2, Harrow-cottages, f.	400
Islington.—43, Arlington-square, u.t. 27 yrs., g.r. 5*l.* 5s., e.r. 45*l.*	370
Canonbury.—20, Canonbury-rd., u.t. 18 yrs., g.r. 6*l.* 10s., r. 16*l.*	340
Dulwich.—3, Hillsboro'-rd., u.t. 64 yrs., g.r., 7*l.* 10s., r. 42*l.*	450

By WM. WESTON.

Turnham Green.—15, 16, and 24, Chiswick-rd., f., r. 78*l.* 2s.	1,260
Acton.—70, 72, and 74, Church-rd., f.	1,365
Westbourne-pk.—3, 4, 5, and 6, St. Luke's Mews, u.t. 62½ yrs., g.r. 20*l.*	950
Kilburn.—Alpha-pl., i.g.r. 12*l.*, u.t. 58 yrs., g.r. 2*l.*	180

By DOUGLAS YOUNG & Co.

Streatham.—Madeira-rd., Melrose, f., e.r. 70*l.*	975
Norwood.—4, Werndee-rd., f., r. 32*l.*	395
Kensal Rise.—26, Felixstowe-rd., f.	325
Stockwell.—24, Tregothnan-rd., u.t. 82 yrs., g.r. 8*l.* 8s., r. 40*l.*	355
Streatham.—11 to 15, Edgington-rd., u.t. 87 yrs., g.r. 18*l.* 15s.	685

By A. PREECE (at Holloway).

Holloway.—21 to 27 (odd), Mulkern-rd., u.t. 61½ yrs., g.r. 20*l.* 10s., r. 128*l.*	1,180
61, Calverley-grove, u.t. 61½ yrs. g.r. 6*l.*, r. 30*l.*	275
143, Elthorne-rd., u.t. 61½ yrs., g.r. 7*l.*, r. 36*l.*	345

By WALTERS & RAWLENCE (at Frome).

Witham, Somerset.—The Witham Friary Estate, 522 a. 1 r. 23 p., f.	7,800

September 20.—By BOYCE & EVENS.

Woodford.—1 and 2, Sherwood-cottages; also 1 and 2, Mansfield-cottages, f.	690
Hackney.—26, Mare-st., f., r. 60*l.*	740
Walthamstow.—68 to 80 (even), High-st., f., r. 315*l.*	5,530

By C. C. & T. MOORE.

Commercial-rd. East.—Union-st., &c., f.g.r., 31*l.* 10s., reversion in 79 yrs.	780
54 to 66 (even), Watney-st., f., r. 400*l.*	7,390
68 and 70, Watney-st., and 21 and 23, Morris-st., f., r. 162*l.*	3,135
Stepney.—34 to 42 (even), Gold-st., 26½ yrs., g.r. 13*l.* 15s.	735

By WORSFOLD & HAYWARD (at Dover).

Dover, Kent.—60, Bulwark-st., u.t. 34½ yrs., g.r. 4*l.*, r. 20*l.*	220
44 and 46, Wyndham-rd., u.t. 993 yrs., g.r. 4*l.*	240
18, Effingham-cres., u.t. 26 yrs., g.r. 1*l.*, r. 35*l.*	400
9, Portland-place, f.	185

By J. A. EGGAR (at Farnham).

Long Sutton, Hants.—Enclosure of land, 15 a., f.	245

September 21.—By FRANKLIN, GALE, & NEWTON.

Ipsden, Oxon.—Hailey Farm, 33 a. 2 r. 29 p., f.	860
North Stoke, Oxon.—Five freehold cottages	200

By W. B. HALLETT.

Goring, Oxon.—River-rd., a building site, 1 a. 0 r. 16 p., f.	250

By RAMSEY & Co.

Clapham Common.—48, The Chase, f., r. 50*l.*	680
Carshalton.—Park Hill-rd., &c., six plots of building land, f.	235

By RIDER & SONS.

Notting Hill.—281 and 283, Latimer-rd., u.t. 43 yrs., g.r. 8*l.*	410
15, 16 and 17, Raymede-st., u.t. 75 yrs., g.r. 15*l.*	725
82 and 84, Blechynden-st., u.t. 65½ yrs., g.r. 12*l.* 12s.	520

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.			
Hard Stocks	1	15	0	per 1,000	alongside, in river.	
Rough Stocks and Grizzles	1	11	0	,,	,,	,,
Smooth Bright Facing Stocks..	2	18	0	,,	,,	,,
Shippers	2	2	0	,,	,,	,,
Flettons.....	1	9	6	,,	at railway depôt.	
Red Wire Cuts ..	1	15	0	,,	,,	,,
Best Fareham Red	3	11	6	,,	,,	,,
Best Blue Pressed Staffordshire ..	4	7	0	,,	,,	,,
Do., Bullnose	4	12	0	,,	,,	,,
Best Stourbridge Fire Bricks	4	4	6	,,	,,	,,
GLAZED BRICKS.						
Best White and Ivory Glazed Stretchers.....	13	0	0	,,	,,	,,
Headers	12	0	0	,,	,,	,,
Quoins, Bullnose, and Flats	17	0	0	,,	,,	,,
Double Stretchers	19	0	0	,,	,,	,,
Double Headers..	16	0	0	,,	,,	,,
One Side and two Ends	19	0	0	,,	,,	,,
Two Sides and one End	20	0	0	,,	,,	,,
Splays, Chamfered, Squints	20	0	0	,,	,,	,,
Best Dipped Salt Glazed Stretchers and Headers ..	18	0	0	,,	,,	,,
Quoins, Bullnose, and Flats	14	0	0	,,	,,	,,

PRICES CURRENT (*Continued*).

	£	s.	d.			
Double Stretchers	15	0	0	per 1,000 at railway depôt.		
Double Headers..	14	0	0	,,	,,	,,
One Side and two Ends	15	0	0	,,	,,	,,
Two Sides and one End	15	0	0	,,	,,	,,
Splays, Chamfered, Squints	14	0	0	,,	,,	,,
Seconds Quality White and Dipped Salt Glazed	2	0	0	,,	less than best.	
				s.	d.	
Thames and Pit Sand				8	0	per yard, delivered.
Thames Ballast				6	9	,, ,,
Best Portland Cement				37	6	per ton ,,
Best Ground Blue Lias Lime..				24	0	,, ,,

NOTE.—The cement and lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	12s. 6d. per yard, delivered.
Stourbridge Fire-clay in sacks, 32s. 6d. per ton at rly. dpt.	

STONE.

		s.	d.		
Ancaster in blocks		2	0	per ft. cube, deld. rly. depôt	
Bath	,, ...	1	7	,,	,,
Beer	,, ...	1	6½	,,	,,
Grinshill	,, ...	1	10	,,	,,
Brown Portland in blocks		2	2	,,	,,
Darley Dale	,,	2	1½	,,	,,
Red Corsehill	,,	2	5	,,	,,
Red Mansfield	,,	2	4½	,,	,,
Hard York	,,	2	10	,,	,,
Hard York 6 in. sawn both sides landings, to sizes (under 40 ft. sup.)		2	7	per ft. super. at rly. depôt.	
,, ,, 6 in. Rubbed Ditto..		2	10½	,,	,,
,, ,, 3 in. sawn both sides slabs (random sizes)		1	3	,,	,,
,, ,, 3 in. self-faced Ditto		0	9	,,	,,

SLATES.

in.	in.	£	s.	d.	
20 × 10	best blue Bangor..	11	5	0	per 1000 of 1200 at rly. dep.
,,	best seconds ,,	10	15	0	,, ,,
16 × 8	best ,,	6	2	6	,, ,,
20 × 10	best blue Portmadoc	10	18	0	,, ,,
16 × 8	best blue Portmadoc	6	0	0	,, ,,
20 × 10	best Eureka unfading green....	11	2	6	,, ,,
16 × 8	,, ,,	6	15	0	,, ,,
20 × 10	Permanent green and Sedan green	10	0	0	,, ,,
16 × 8	,, ,,	5	12	6	,, ,,

TILES.

	s.	d.	
Best plain red roofing tiles..	41	6	per 1,000 at rly. depôt.
Hip and valley tiles....	3	7	per doz.
Best Broseley tiles	42	6	per 1,000 ,, ,,
Hip and valley tiles....	4	0	per doz. ,, ,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57	6	per 1,000
Do. ornamental Do.	60	0	,, ,,
Hip tiles.....	4	0	per doz. ,, ,,
Valley tiles.....	3	9	,, ,, ,,
Best Red or Mottled Staffordshire Do. (Peakes) .	50	9	per 1,000 ,, ,,
Hip tiles	4	1	per doz. ,, ,,
Valley tiles.....	3	8	,, ,, ,,

WOOD.

BUILDING WOOD.—YELLOW.

	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	16	10	0	18	0	0
Deals: best 3 by 9	14	10	0	15	10	0
Battens: best 2½ in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.....	12	10	0	13	10	0
Battens: best 2½ by 6 and 3 by 6 ..	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best		
Battens: seconds.....	0	10	0	,, ,, ,,		

	At per load of 50 ft.					
Fir timber: Best middling Danzig or Memel (average specification)	4	10	0	5	0	0
Seconds	4	5	0	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	3	15	0
Swedish balks.....	2	15	0	3	0	0
Pitch pine timber (35 ft. average)..	4	0	0	4	10	0

JOINERS' WOOD.

	At per standard.					
White Sea: First yellow deals, 3 in. by 11 in.....	27	10	0	28	10	0
3 in. by 9 in.	24	0	0	25	0	0
Battens, 2½ in. and 3 in. by 7 in.	20	0	0	21	0	0
Second yellow deals, 3 in. by 11 in.	22	10	0	24	0	0
,, ,, 3 in. by 9 in.	20	0	0	21	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	18	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	16	10	0	18	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	14	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	25	0	0	26	0	0
Do. 3 in. by 9 in.	22	0	0	23	0	0
Battens.....	16	10	0	17	10	0
Second yellow deals, 3 in. by 11 in.....	18	10	0	20	0	0
Do. 3 in. by 9 in.	17	0	0	18	0	0
Battens.....	14	0	0	14	10	0
Third yellow deals, 3 in. by 11 in.....	15	0	0	16	10	0
Do. 3 in. by 9 in.	14	0	0	14	10	0
Battens.....	12	10	0	13	10	0
White Sea and Petersburg:—						
First white deals, 3 in. by 11 in..	15	10	0	16	10	0
,, ,, ,, 3 in. by 9 in. ..	14	0	0	15	0	0
Battens.....	12	10	0	13	10	0
Second white deals 3 in. by 11 in.	14	0	0	15	0	0
,, ,, ,, 3 in. by 9 in.	13	0	0	14	0	0
,, ,, battens	11	0	0	12	0	0
Pitch pine: deals	16	0	0	18	0	0
Under 2 in. thick extra	0	10	0	1	0	0
Yellow Pine—						
First, regular sizes	30	0	0	33	0	0
Broads (12 in. and up)	2	0	0	more.		
Oddments	22	0	0	24	0	0
Seconds, regular sizes	24	10	0	26	10	0

[*See also next page.*

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
*Plans and Sections for Laying-out Pleasure Grounds	Old Swindon U.D.C.	50*l.*	Oct. 22

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c., Supplied by	Tenders to be delivered
*Old Granite Setts	Camberwell Vestry	Engineer, Vestry Hall, Peckham-road, S.E.	Oct. 1
*Forty-eight Cottages, Belvedere, &c.	Erith U.D.C.	Council's Surveyor, High-street, Erith	do.
*Road-making, &c., Works, Montague-av., Brockley	Lewisham Board of Works	Surveyor, Town Hall, Catford, S.E.	Oct. 2
*Road-making, &c., Works, Crofton Park-rd., Brockley	do.	do	do.
Granite Road Metal (900 tons)	Wealdstone U.D.C.	F. H. Parr, Civil Engineer, Wealdstone	do.
Street Improvements, Quarry-street	Whitworth (Lancs.) U.D.C.	T. Biker, Surveyor, Facit, near Rochdale	do.
Quartzite Road Metal (1,000 tons)	Windsor Town Council	E. A. Stickland, Borough Surveyor, Alma-road, Windsor	do.
Store Buildings, Welbeck-road, Walker, Newcastle	Walker Co-operative Society, Ltd.	Secretary, Society's Offices, Lamb-street, Newcastle-on-Tyne	do.
Marble Mosaic Pavement, East Parade	Leeds Guardians	Butler, Wilson, & Oglesby, Architects, 12, East-parade, Leeds	do.
Cast-iron Water Pipes and Laying (10 miles), Balmore	Stirlingshire County Council	Kyle & Frew, Engineers, 140, West George-street, Glasgow	do.
House, Muchalls, Aberdeen	.....	Walker & Duncan, Architects, 3, Golden-square, Aberdeen	do.
Building Work at Workhouse, Wisborough Green	Petworth Guardians	A. F. Mant, Union Offices, Petworth	do.
Electricity Buildings, Pleck-road	Walsall Corporation	A. Wyllie, Borough Engineer, Walsall	do.
Granite Road Metal (2,500 tons)	Aldershot U.D.C.	N. F. Dennis, Civil Engineer, Aldershot	do.
Footpaths, &c.	Bishop's Stortford U.D.C.	E. S. Scott, Civil Engineer, North-street, Bishop's Stortford	do.
Street Works, Whitfield-avenue	Dover Town Council	H. E. Stilgoe, Civil Engineer, Town Hall	do.
Sewerage Works, &c., Whitfield-avenue	do.	do.	do.
Sewerage Works	Bridgnorth Town Council	R. Trevor, Borough Surveyor, Bridgnorth	do.
Offices, &c., Dock-street, Middlesbrough	North-Eastern Railway Company	W. Bell, Architect, York	Oct. 3
Additions to Schools, near Tamworth	Kingsbury School Board	J. W. Godderidge, Architect, Tamworth	do.
Roads, Hemsworth and Kinsley	Hemsworth R.D.C.	T. H. Richardson, Hemsworth	do.
Roads, &c., Chanctonbury-road	Hove (Sussex) Town Council	H. H. Scott, Engineer, Town Hall, Hove	do.
Water Supply, Long Rock, Cornwall	Ludgvan U.D.C.	J. J. Hill, Council Offices, Ludgvan	do.
Additions to Schools, Mardy	Ystradyfodwg School Board	J. Rees, Architect, Pentre, Glam.	do.
Laying and Jointing Cast-iron Pipes, &c. (2,200 yards)	Neath R.D.C.	W. R. C. Thomas, Engineer, Council Offices, Neath	do.
Storm Water Reservoir Works	Littlehampton U.D.C.	H. Howard, Surveyor, Town Offices, Littlehampton	do.
*Roadways and Footpaths	Chaseside Building Estate	Walton & Lee, Surveyors, 10, Mount-street, Grosvenor-sq., W.	Oct. 4
Alterations to House, Leatherhead	Mr. C. Burgin	J. Ladds, Architect, 7, Doughty-street, W.C.	do.
Footpath, &c., Royal Hill	Southend Corporation	A. Fidler, Civil Engineer, Southend	do.
Alterations, &c., to Schools, Spennymoor	Tudhoe School Board	G. W. Rogers, Architect, Spennymoor, Durham	do.
Alterations to Hall, &c., St. Albans	.....	F. W. K. Tarte, Architect, 12, St. Peter-street, St. Albans	do.
Settling Tanks	Burley (Yorks.) Sewage Com.	H. A. Johnson, Civil Engineer, 15, The Exchange, Bradford	do.
*Pumping House at Bedford	Midland Railway	See Advertisement	Oct. 5
Retaining Wall, &c., River Medlock	Manchester Corporation	City Surveyor, Town Hall	do.
Additions to Schools, Westgate, Rotherham	.....	J. Platts, Architect, Old Bank Buildings, Rotherham	do.
Furniture Depository, Exmouth	Messrs. Blackmore & Sons	E. E. Ellis, Architect, The Strand, Exmouth	Oct. 6
Churchyard Extension, &c., Methley, Yorks.	.....	A. W. Jackson, Melwood House, Methley	do.
House, St. Levan, Cornwall	.....	Mr. C. Botterell, Polggiga, St. Levan	Oct. 8
School, Cefn Cribbwr, near Bridgend	.....	Cook & Edward, Architects, Bridgend	do.
Rebuilding Poyntington Viaduct	Dorset County Council	E. A. Flooks, County Council Offices, Sherborne	do.
Roof Works, Sutton, near Dublin	G. N. Railway Company (Ireland)	T. Morrison, Amiens-street Terminus, Dublin	do.
School Room, &c., Rosaline-road, Fulham	Trustees of Fulham Baptist Chapel	T. Boughton, 18, Doria-road, Parson's Green	do.
Alterations to Offices, Piccadilly	Manchester Corporation	J. M. M'Elroy, Town Hall	do.
Road Works, Milton-road, &c.	Margate Town Council	Borough Surveyor, Town Hall, Margate	do.
Surveyor's Materials, &c., Manchester	L. and Y. Railway Company	R. C. Irwin, Hunt's Bank, Manchester	do.
Post Office, Clonmel, Ireland	Office of Works, Dublin	Secretary, The Office, Dublin	Oct. 9
Pipe Sewer (3,050 yards)	Canterbury Corporation	A. C. Turley, Civil Engineer, High-street, Canterbury	do.
*Sewerage Works	Bromley U.D.C.	Surveyor, Council Offices, Bromley, Kent	do.
Alterations to Premises, Wellington-street	Bingley U.D.C.	H. Bottomley, Surveyor, Town Hall	Oct. 10
*Workmen's Dwellings	Twickenham U.D.C.	Surveyor, Council Town Hall, Twickenham	Oct. 11
*Cottages, Parker-road, Grays	Gray's Thurrock U.D.C.	Surveyor, Council Offices, Grays	do.
*Making-up Roads	Beckenham U.D.C.	Surveyor, Council Offices, Beckenham, Kent	Oct. 15
*Making-up Bromley Gardens	Beckenham and Bromley U.D.C.	do.	do.
*Broken Granite	Hanwell U.D.C.	Council's Offices, Hanwell, W.	do.
Limestone (2,000 tons) Road Metal, &c.	Tredegar U.D.C.	W. C. Widdowson, Surveyor, Tredegar	do.
*Constabulary Head Quarters, Springfield	Essex County Council	Clare & Rose, Architects, 66, Duke-street, Chelmsford	Oct. 20
*Electric Light Station	Dartford U.D.C.	Hesketh & Stokes, 110, Cheapside, E.C.	do.
*Two Shops in South End, Croydon	.....	F. & W. Stocker, Architect, Queen-street, Cheapside, E.C.	Oct. 24
Two Semi-detached Villas, Bloomfield	.....	G. B. Moffat, Architect, 7, Wellington-place, Belfast	No date
Two Houses and Shops, Beeston, Leeds	.....	Mr. J. Dawson, Punch Bowl, Beeston	do.
Offices, Barrow-in-Furness	.....	R. M. Young, Architect, 90, Duke-street, Barrow	do.
Steam Laundry, Stabling, &c., Cardigan-lane, Leeds	.....	J. B. Bailey & Son, Architects, 3, Scott-street, Keighley	do.
*Swimming Baths, &c.	Edmonton U.D.C.	W. G. Scott, Architect, 25, Bedford-row, W.C.	do.

PUBLIC APPOINTMENTS

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Clerk of Works	Camberwell Vestry	4*l.* 4*s.* per week	Oct. 2

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p.* iv. *Contracts, pp.* iv. vi. viii. x. *&* xxi. *Public Appointments, pp.* xviii. *&* xxi.

PRICES CURRENT (*Continued*).

	At per standard. £ s. d.	£ s. d.
Yellow Pine Oddments	20 0 0	22 0 0
Kauri Pine—		
Planks, per ft. cube	0 3 6	0 4 6
Dantzig and Stettin Oak Logs—		
Large, per ft. cube	0 2 6	0 2 8
Small " "	0 2 4	0 2 7
Wainscot Oak Logs, per ft. cube	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 8	0 0 9
1½ in. do. do.	0 0 7	- - -

PRICES CURRENT (*Continued*).

	At per standard. £ s. d.	£ s. d.
Dry Mahogany—		
Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	16 0 0	20 0 0
American Whitewood Planks—		
Per ft. cube	0 2 3	0 3 0

PRICES CURRENT (*Continued*).

JOISTS, GIRDERS, &c.

	In London, or delivered to Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	9 7 6	- - -
Compound Girders " "	13 10 0	- - -
Angles, Tees and Channels, ordinary sections	12 10 0	14 10 0
Fitch Plates	12 0 0	- - -

PRICES CURRENT (*Continued*).

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON.—		
Common Bars	10 0 0	10 10 0
Staffordshire Crown Bars, good merchant quality	11 5 0	11 15 0
Staffordshire "Marked Bars" ..	13 5 0	- - -
Hoop Iron, basis price	11 5 0	11 15 0
" " galvanised	17 0 0*	- - -
("* And upwards, according to size and gauge.)		
Sheet Iron, Black.—		
Ordinary sizes to 20 g.	11 10 0	- - -
" " to 24 g.	12 15 0	- - -
" " to 26 g.	13 15 0	- - -
Sheet Iron, Galvanised, flat, ordinary quality.—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	14 15 0	- - -
" " 22 g. and 24 g.	15 5 0	- - -
" " 26 g.	16 15 0	- - -
Sheet Iron, galvanised, flat, best quality.—		
Ordinary sizes to 20 g.	18 10 0	- - -
" " 22 g. and 24 g.	19 0 0	- - -
" " 26 g.	20 10 0	- - -
Galvanised Corrugated Sheets.—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	14 0 0	14 15 0
" " 20 g. and 24 g.	14 15 0	15 10 0
Cut nails, 3 in. to 6 in.	11 10 0	- - -
(Under 3 in. usual trade extras.)		
LEAD—Sheet, English, 3 lbs. & up.	20 0 0	- - -
Pipe in coils	20 10 0	- - -
ZINC—Sheet—		
Vieille Montagne ton	28 0 0	- - -
Silesian	27 10 0	- - -
COPPER—		
Strong Sheet per lb.	0 1 1	- - -
Thin "	0 1 3	- - -
Copper nails "	0 1 3	- - -
BRASS—		
Strong Sheet "	0 0 11	- - -
Thin "	0 1 1	- - -
TIN—English Ingots "	0 1 7	- - -
SOLDER—Plumbers' "	0 0 8	- - -
Tinmen's "	0 0 10	- - -
Blowpipe "	0 1 0	- - -

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2½d. per ft. delivered.
" fourths	2¾d. " "
21 oz. thirds	3½d. " "
" " fourths	3d. " "
26 oz. thirds	4¼d. " "
" " fourths	4d. " "
32 oz. thirds	5¼d. " "
" " fourths	5d. " "
Fluted sheet, 15 oz.	3¼d. " "
" " 21 "	4¼d. " "
½ Hartley's Rolled Plate	3d. " "
½ " " "	3½d. " "
½ " " "	4d. " "

OILS, &c.

	£ s. d.
Raw Linseed Oil in pipes per gallon	0 3 1
" " " in barrels "	0 3 2
" " " in drums "	0 3 4
Boiled " " in pipes "	0 3 4
" " " in barrels "	0 3 5
" " " in drums "	0 3 7
Turpentine, in barrels "	0 2 5
" in drums "	0 2 7
Genuine Ground English White Lead ..per ton	27 10 0
Red Lead, Dry "	25 0 0
Best Linseed Oil Putty per cwt.	0 9 6
Stockholm Tar per barrel	1 7 0

VARNISHES, &c.

	per gallon. £ s. d.
Fine Elastic Copal Varnish or outside work ..	0 16 6
Best Elastic Copal Varnish for outside work ..	1 0 0
Best Elastic Carriage Varnish for outside work	0 16 6
Best Hard Oak Varnish for inside work	0 10 6
Best Extra Hard Church Oak Varnish for inside work	0 10 6
Fine Hard Copal Varnish for inside work	0 16 0
Best Hard Copal Varnish for inside work	1 0 0
Best Hard Carriage Varnish for inside work	0 16 0
Extra Pale Paper Varnish	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 9 0
Berlin Black	0 15 0
Knotting	0 10 0
Best French and Brush Polish	0 10 0

TO CORRESPONDENTS.

H. S.—J. C. (Amount should have been stated).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays.* N.B.—We cannot publish tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of tenders accepted unless the amount of the tender is given, nor any list in which the lowest tender is under £100, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ABERDEEN.—For the reconstruction of pipe sewer, &c., Park-street, for the Town Council. Mr. Wm. Dyack, Borough Surveyor, Town Hall, Aberdeen :—
A. McKay, Aberdeen £150 12 6

ASHBURTON (Devon).—For additions to Wickeridge House, for Mr. G. E. Allen. Mr. W. Barrons, architect, Totnes :—
W. Atwill, Broadhempston, Totnes* £410

BAKEWELL.—For additions to house at the gasworks, for the Urban District Council. Mr. W. Redfearn, Town Surveyor, Bakewell. Quantities by the Town Surveyor :—

J. Vaines	£368 10	E. & W. Bramwell	£336 15
Toft & Clark	354 0	Allsop & Son, Bakewell*	325 0
G. & W. Toft	343 0		

BRIDLINGTON QUAY.—For erection of house and premises, west side St. John's-avenue (South), for Mr. A. Jennison. Mr. J. Earnshaw, architect, Wellington-road, Bridlington Quay :—

J. Rennard	£456 0 0	Barr & Booth	£349 3 0
G. Walkington	439 14 0	Smallwood & Shaw	337 3 6
E. Corner	439 0 0	A. Gardam	333 0 0
C. Limon	398 0 0	T. Spink*	301 11 0
T. Atkin	379 9 0		
W. Barnes	378 0 0		

[All of Bridlington.]

BRIDLINGTON QUAY.—For the erection of a farmhouse, Bessingby, for Mr. A. G. W. Wright. Mr. J. Earnshaw, architect, Carlton House, Bridlington Quay :—

Walkington & Day	£999 10 0	Barr & Booth	£750 0 0
Smallwood & Shaw	921 10 4	J. Rennard	745 0 0
A. Gardam	896 10 0	J. Lawdon	745 0 0
		E. Wilson*	740 0 0

[All of Bridlington].

BRISTOL.—For the erection of the superstructure of business premises, for Messrs. Lennards, Limited, Park-place, Clifton. Mr. H. Dare Bryan, architect, 38, College-green, Bristol. Quantities by Messrs. Bernard & Pearson, Bristol :—

	Bath Stone.	Doulting Stone.	Ham Hill Stone.
T. Rowbotham	£54,960	£57,160	£58,710
Perry & Co.	54,300	56,500	58,190
Hayward & Wooster	53,700	56,010	57,100
Parnell & Son	53,407	55,860	57,000
Long & Sons	52,210	54,600	56,590
A. J. Beavan	50,720	53,100	54,900
Stephens, Bastow, & Co.	48,324	50,624	50,624
Cowlin & Son	48,124	50,496	52,079
Shillitoe & Son	42,950	46,000	46,500
Wilkins & Sons, Bristol	41,680‡	44,900	45,600

‡ Reduced to £33,774 and accepted.

BRITON FERRY (Glam.).—For the construction of a brick sewer (700 yards), for the Urban District Council. Mr. H. Alec Clarke, engineer, Council Offices, Briton Ferry. Quantities by the engineer :—

J. Sutherland	£2,397 0 0	T. Waters	£1,475 19 6
T. Williams	1,911 0 0	W. Thompson	1,436 1 1
J. Grove	1,604 18 5	H. Jones, Briton Ferry*	1,434 10 0
L. Gower	1,600 0 0		

[Engineer's estimate, £1,450.]

COLCHESTER.—For sewering, paving, &c., Walsingham-road, for the Corporation. Mr. Herbert Goodyear, Borough Surveyor, Town Hall, Colchester :—

W. Wady	£235 4 4	Burgoyne & Son, Ipswich*	£172 9 9
W. Howard & Son	194 3 8		

CROYDON.—For the erection of schools, Portland-road, South Norwood, for the Croydon School Board, Mr. H. Carter Pegg, architect, 137, Brigstock-road, Thornton Heath :—

Foster Bros.	£25,362	W. Smith & Son	£19,500
S. Redhouse	21,165	Akers & Co.	18,949
Patman & Fotheringham	20,771	J. Smith & Sons.	18,881
		E. J. Saunders Croydon*	17,800

GRAYS (Essex).—For the supply of 700 to 800 tons granite and 660 lin. ft. straight Norway kerb, for the Urban District Council. Mr. A. C. James, surveyor, Council Offices, Grays :—

	Description of Macadam.	Macadam per ton. s. d.	Kerb per ft. s. d.
W. Illingworth	Rowley	14 9	—
"	Scotch	12 0	—
W. Griffiths	Guernsey	12 4	1 11
Fry Bros.	"	12 0	—
Road Maintenance Co.	Quartzite	10 9	—
The Quartzite Co., London	"	10 6*	—
Blichfeldt & Co.	"	—	1 9½
Grimley & Co.	Leicestershire	13 6	—
Van Praagh & Co., London	"	14 3	1 9*
G. A. Watson	Hartshill	13 0	—

GREAT YARMOUTH.—For additions to workhouse, Rollesby. Mr. A. S. Hewitt, architect, 23, Regent-street, Great Yarmouth :—

Carter & Wright	£450 0	G. Farman, Caister*	£382 10
J. Moore	349 10		

HASTINGS.—For the construction of an underground public convenience, Silverhill, for the Corporation. Mr. P. H. Palmer, C.E., Town Hall, Hastings :—
E. Gutsell, Silverhill, St. Leonards £347

HOXTON.—For the erection of five warehouses and alterations to two shops in Pitfield-street and Bowling Green-walk, Hoxton, E., for Dr. W. Benjafield. Mr. Henry W. Dobb, architect :—
Lawrence & Son, Waltham Abbey* £5,337

KEIGHLEY.—For the erection of store premises, East-avenue, for the Industrial Co-operative Society, Limited. Mr. J. Haggas, architect, North-street, Keighley :—
Masonry.—H. V. Robinson, Keighley .....
Slating.—Wm. Thornton, Bingley .....
Concrete.—Emmott Bros., Keighley .....
Plumbing.—Crabtree & Wallace, Keighley..
£996 (exclusive of joiner's work).

LANCASTER.—For the erection of business premises, King-street, for Mr. E. Johnson. Mr. J. Parkinson, architect, 67, Church-street, Lancaster. Quantities by the architect :—

Masonry.—R. Thompson*	£629 0 0
Joinery.—W. Shaw & Son*	709 15 9
Slating and Plastering.—T. Cross & Son*	167 7 0
Plumbing and Glazing.—R. S. Wilson*	136 10 0
Painting.—J. Taylor*	37 18 9

[All of Lancaster.]

LEICESTER.—For additional stable-buildings, Narborough-road, for Mr. Andrew Upton. Messrs. Tait & Herbert, architects, Friar-lane, Leicester :—

F. Elliot	£672 10	J. O. Jewsbury	£649 0
J. H. Kellett	667 0	W. Tyrrell*	590 0
F. Stevens	660 0		

[All of Leicester.]

LONDON.—For the erection of a warehouse, at Silvertown for the American Radiator Company. Messrs. Harrington & Ley, architects, 65, Bishopsgate-street, Without, and Corn Exchange, Romford :—
Munday & Sons, Trinity-square* £7,962

LONDON.—For decorations and new balcony, at No. 12, Marble Arch, Hyde Park, for Mr. Thomas Cadarn Reece. Mr. Alfred E. Nightingale, architect, Albert Embankment, London :—
Alfred Brown* £155

LONDON.—For the erection of nurses' home and additions to kitchen at Church-lane, Tooting, for the Guardians of the Wandsworth and Clapham Union. Mr. Cecil A. Sharp, architect, 11, Old Queen-street, Queen Anne's Gate, S.W. :—

Garrett & Son	£3,108 10 0	Akers & Co.	£2,447 0 0
R. A. Jewell	2,788 7 4	Huntley Bros.	2,398 0 0
Cropley Bros.	2,750 0 0	Foster Bros., Norwood Junction*	2,296 0 0
H. Wall	2,659 0 0		
W. H. Lascells	2,523 0 0		

LONDON.—For street improvement works, Church-street, for the Stoke Newington Vestry. Mr. Reginald Brown, C.E., Vestry Offices, Stoke Newington :—

S. Saunders	£545 4 6	W. Griffiths, Bishopsgate-st.*	£418 9 0
Acme Wood Flooring Co.	503 0 0	W. Wadey	410 0 0
Mowlem & Co.	468 14 3		

MIDDLETON (Lancs.).—For paving, flagging, &c., Hanson-street, for the Corporation. Mr. W. Welburn, Borough Surveyor, Town Hall, Middleton. Quantities by the Borough Surveyor :—

Etheridge & Clarke	£284 17 10	Partington & Son, Middleton*	£261 5 1

NAVAN.—For the erection of stabling, &c., Trim Gate-street, for Mr. T. J. McQuillan. Mr. S. Lowe, architect, Navan :—

F. Gogarty	£160 0	J. Navagh, Navan*	£123 14
C. Pigott	130 0		

[Exclusive of fittings, &c.]

NOTTINGHAM.—For the erection of four dwelling-houses and shops, Poplar-street, for the Home Brewery Company, Limited. Mr. Fred. C. Martin, architect, Angel-row, Nottingham :—

C. Wooll	£726 0 0	E. Morris	£680 0 0
G. Walker	683 7 8	T. H. Harper*	580 0 0

PONTEFRACT.—For the execution of street works, Love-lane-terrace, for various owners. Messrs. Garside & Pennington, surveyors, Pontefract. Quantities by Castleford & Selby :—

J. Summers	£481 0 0	W. Waddington	£412 0 0
B. Roberts	459 0 0	Hall & Sons, Bradford*	390 2 5

PORTSMOUTH.—For the erection of power station buildings and chimney-shaft, Vivash-road, Fratton-grove, for the Corporation. Mr. E. Rotter, C.E., Town Hall, Portsmouth. Quantities by Messrs. Rake & Cogswell, Prudential Buildings, Portsmouth :—

Light & Son	£12,200 0 0	J. J. Crockerell	£11,075 0 0
W. W. Learmouth	11,473 0 0	W. W. Evans	10,990 0 0
Clark & Son	11,450 0 0	M. Coltherup	10,826 3 5
T. W. Quick	11,450 0 0	J. W. Perkins, Clive-road, Portsmouth*	10,515 8 0
W. Ward	11,300 0 0		
J. Croad	11,200 0 0		

PRESTON (Lancs.).—For levelling, paving, flagging, &c., Waterloo-terrace, Ashton, for the Corporation :—
J. Moxham, Brackenbury-street, Preston £1,010 15 8

[*See also next page.*

SHEERNESS.—For the supply of (1) quartzite, 400 yards; (2) broken flints, 300 yards; (3) hoggin, 250 yards: for the Urban District Council. Mr. Thos. F. Berry, surveyor, Council Offices, Sheerness :—

Contract No. 1.

	Per Ton. s. d.
D. Ward	15 0
Quartzite Company	13 7
J. Bligh	13 0
Road Maintenance and Stone Supply Company, The Crescent, Gravesend*	12 11
W. Illingworth	12 6
J. H. Dickson	12 6

Contract No. 2.

Wills & Packham	5 2
Tuff & Miskin	5 1
Knight & Hodgkin	4 11
Smeed, Dean, & Co., Sittingbourne*	4 9

Contract No. 3.

E. J. & W. Goldsmith	4 6
Tuff & Miskin	3 11
Wills & Packham, Sittingbourne*	3 5

WAKEFIELD.—For the erection of twelve through houses, Ashdown-road, Belle Vue, Sandal, for Mr. W. N. Wynn, C.E., 10, Livingstone-street, Roundhay-road, Leeds :—

Bricklaying, &c.—J. S. Duncan Staerfoot, Barnsley	£1,389 12
Carpentry and Joinery.—G. H. Nettleton, Tenter-lane, Leeds	902 0
Slating.—J. Season, Hunslet-road	117 15
Plastering.—C. Driver, Arundel-street, Wakefield	211 10
Plumbing and Glazing.—J. Stead, Crosslane, Sandal, Wakefield	95 0
Painting.—Baines & Taylor, George-street, Wakefield	43 0

WAKEFIELD (Yorks).—Accepted for the erections of Wesleyan Church and Sunday Schools at Newton Lane End, for the Committee. Messrs. Garside & Pennington, architects, Pontefract, Castleford, and Selby. Quantities by the architects :—

Brickwork.—Armitage, Outwood	£1,470 12
Joinery.—J. W. Harrop, Ossett	605 14
Plumbing.—J. H. Wilson, Outwood	222 0
Plastering.—Lockwood, Castleford	135 15
Slating.—Pickles Bros., Leeds	270 0
Painting.—Geo. Thompson, Leeds	34 0

WALSALL.—For the erection of a house at Palfrey Schools for the School Board. Messrs. Bailey & McConnal, architects, Bridge-street, Walsall :—

T. Hughes	£420 0	Brockhurst & Wood	£387 10
S. Wootton	397 0	W. Lees	355 7
J. Mallin	395 0	J. Wilkes, Walsall*	354 0
T. Mason	393 0		

WALSALL.—For the erection of schools, Wolverhampton-road, for the School Board. Messrs. Bailey & McConnal, architects, Bridge-street, Walsall. Quantities by architects :—

J. Harley	£6,400	M. A. Lynex	£5,850
F. L. Jones	6,330	Brockhurst & Wood	5,815
J. Dallow	6,220	W. Wistance	5,714
G. H. Marshall	6,172	T. Mason	5,700
W. Harvey Gibbs	6,000	S. Wootton, Bloxwich*	5,541
J. Mallin	5,890		
T. Tildesley	5,854		

WESTON-SUPER-MARE.—For the erection of swimming bath, &c., Knightstone, for the Urban District Council. Mr. Hugh Nettleton, surveyor, Town Hall, Weston-super-Mare :—

Hayward & Wooster	£8,992	W. Gibson, Exeter*	£8,563
Kruuss & Son	8,886	W. M. Dubin	8,067
H. W. Pollard	8,645		

WORKSOP.—For the erection of electricity supply works, Canal-road, for the Urban District Council :—

Hett & Sons	£4,494	H. Pickers, Ltd.	£4,104
G. Wright	4,343	W. Hall, Potter-st., Worksop*	3,950
H. Wickers	4,340		

PUBLISHER'S NOTICES.

Telegraphic Address, "THE BUILDER, LONDON."

CHARGES FOR ADVERTISEMENTS.

COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, &c. &c.

Six lines, or under ..... 6s. 6d.
Each additional line ..... 1s. 0d.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE AND GENERAL ADVERTISEMENTS.

Six lines (about fifty words) or under ..... 4s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

Terms for series of Trade advertisements, and for front page, and other special positions, on application to the Publisher.

SITUATIONS WANTED (Single-handed—Labour only).
FOUR lines (about thirty words) or under ..... 2s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

"*" Stamps must not be sent, but all sums should be remitted by Postal Orders, payable to DOUGLAS FOURDRINIER, and addressed to the Publisher of "THE BUILDER," Catherine-street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE noon on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS Advertising in "The Builder" may have *Replies addressed to the Office*, Catherine-street, Covent Garden, W.C. *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES, { NINEPENCE EACH. By Post (carefully packed) 1s.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 17s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances (payable to DOUGLAS FOURDRINIER) should be addressed to the publisher of "THE BUILDER," Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office, 17s. per annum (52 numbers) or 4s. 6d. per quarter (13 numbers), can ensure receiving "The Builder," *by Friday Morning's Post.*

C. B. N. SNEWIN
MAHOGANY, WAINSCOT, WALNUT, TEAK, VENEER, and TIMBER MERCHANT,
Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL, HATTON GARDEN, and 29, RAY STREET, FARRINGDON ROAD, E.C.
THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
Telephone, No. 274 Holborn. Tele. Address: "SNEWIN: London."

J. J. ETRIDGE, Jr.
SLATE MERCHANT,
SLATER and TILER.
Penrhyn - Bangor,
Oakeley - Portmadoc,
And every other description of Slates, except American, Ready for immediate delivery to any Railway Station.
PLASTERERS' LATHS
(HAND-MADE)
ALWAYS IN STOCK.
Applications for Prices, &c., to
BETHNAL GREEN SLATE WORKS,
BETHNAL GREEN, LONDON, E.

THE BATH STONE FIRMS, Ltd.
BATH.
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE.
DOULTING STONE.
The Ham Hill and Doulting Stone Co.
(Incorporating the Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.)
Chief Office :—Norton, Stoke-under-Ham, Somerset.
London Agent :—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

SPRAGUE & CO., Ltd.,
PROCESS BLOCK MAKERS
of all descriptions.
4 & 5, East Harding-street, Fetter-lane, E.C.

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.
METCHIM & SON { 8, PRINCES STREET, ST. GEORGE'S, WESTMINSTER.
"QUANTITY SURVEYORS' DIARY AND TABLES." For 1900, price 6d. post 7d. In leather 1/- Post 1/1.

DRY PLANKS AND BOARDS
In all kinds of Hard Woods.
Mahogany, Wainscot, Teak, &c. &c.
Wm. MALLINSON & Co.
Offices: 136 & 138, Hackney Road, London, N.E.
Telephone: 1319 AVENUE.

ASPHALTE
For Horizontal & Vertical Damp Courses.
For Flat Roofs, Basements, & other Floors.
Special attention is given to the above by
THE
French Asphalte Co.
Contractors to
H.M. Office of Works, The School Board for London, &c.
For estimates, quotations, and all information, apply at the Offices of the Company,
5, LAURENCE POUNTNEY HILL,
CANNON STREET, E.C.

TWELVE GOLD AND SILVER MEDALS AWARDED.
IRON CISTERNS.
F. BRABY & CO.
VERY PROMPT SUPPLY.
LARGE STOCK READY.
Particulars on application.
CYLINDERS FOR HOT-WATER CIRCULATION.
LONDON: 352 to 364, EUSTON-ROAD, N.W., and 218 and 220, HIGH-STREET, BOROUGH, S.E.
LIVERPOOL: 6 and 8, HATTON GARDEN.
GLASGOW: 47 and 49, ST. ENOCH-SQUARE.
BRISTOL: ASHTON GATE WORKS, CORONATION-RD